

VOLUME 7

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

**Before The Honorable YVONNE GONZALEZ ROGERS, Judge**

EPIC GAMES, INC.,	)	
	)	
Plaintiff,	)	NO. C-20-5640 YGR
	)	
vs.	)	Tuesday, May 11, 2021
	)	
APPLE, INC.,	)	Oakland, California
	)	
Defendant.	)	BENCH TRIAL
	)	
APPLE, INC.,	)	
	)	
Counterclaimant,	)	
	)	
vs.	)	
	)	
EPIC GAMES, Inc.,	)	
	)	
Counter-Defendant.	)	
	)	

REPORTER'S TRANSCRIPT OF PROCEEDINGS

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(Appearances continued.)

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TUESDAY, MAY 11, 2021

7:59 a.m.

P R O C E E D I N G S

**THE CLERK:** Calling CV 20-5640, Epic Games, Inc., vs.  
Apple, Inc.

Counsel, please state your appearances.

**MS. FORREST:** Good morning, Your Honor. Katherine  
Forrest for Epic.

**THE CLERK:** Hold on. I will turn on the mics on the  
table. All the mics are on.

**THE COURT:** All right. Good morning, Ms. Forrest.

**MR. BORNSTEIN:** Good morning, Your Honor. Gary  
Bornstein for Epic.

**THE COURT:** Good morning.

**MS. KLOSS:** Good morning, Your Honor. Lauren Kloss  
for Epic Games.

**THE COURT:** Ms. Kloss, next time into the mic.

**MS. KLOSS:** Will do, Your Honor.

**THE COURT:** That was Lauren Kloss. And?

**MS. GREENFIELD:** Good morning, Your Honor. Jill  
Greenfield for Epic Games.

**THE COURT:** Say that again.

**MS. GREENFIELD:** Good morning, Your Honor. Jill  
Greenfield for Epic Games.

**THE COURT:** Okay. So this is your first time

1 appearing here; right?

2 **MS. GREENFIELD:** Yes, Your Honor.

3 **THE COURT:** I had not highlighted your name yet. All  
4 right.

5 And, Mr. Sweeney, good morning, sir.

6 **MR. SWEENEY:** Good morning.

7 **THE COURT:** Mr. Rudd, good morning.

8 **MR. RUDD:** Good morning.

9 **THE COURT:** On the defense side.

10 **MR. DOREN:** Good morning, Your Honor. Richard Doren  
11 for Apple.

12 **THE COURT:** Good morning.

13 **MR. SWANSON:** Good morning, Your Honor. Dan Swanson  
14 for Apple.

15 **THE COURT:** Good morning, Mr. Swanson.

16 **MS. RICHMAN:** Good morning, Your Honor. Cynthia  
17 Richman for Apple.

18 **THE COURT:** Ms. Richman, good morning.

19 **MR. KLEINBRODT:** Good morning, Your Honor. Julian  
20 Kleinbrodt for Apple.

21 **THE COURT:** Hold on. I did not -- here we go. I  
22 have that from yesterday. Mr. Kleinbrodt.

23 **MR. DOREN:** And along with Mr. Schiller, we are  
24 joined by Scott Murray, in-house counsel for Apple.

25 **THE COURT:** Mr. Murray, have I ever seen you before?

1                   **MR. MURRAY:** You have, Your Honor. Good morning.

2                   **THE COURT:** Good morning. In fact, I may have put  
3 you on the spot a couple of times. All right.

4                   Mr. Schiller, good morning.

5                   **MR. SCHILLER:** Good morning, Your Honor.

6                   **THE COURT:** And Mr. Spalding? No. Do we have a  
7 hot-seat operator?

8                   **MR. ELTISTE:** Yes. Bret Eltiste.

9                   **THE COURT:** Got it. Okay. So let's see. And then  
10 in terms of the pool reporters today, we have Ms. Atkins back  
11 from *Law360*.

12                  **MS. ATKINS:** Yes.

13                  **THE COURT:** Yes?

14                  **MS. ATKINS:** Yes.

15                  **THE COURT:** Good morning. And Bobbie Allyn from *NPR*?

16                  **MS. ATKINS:** He's not here yet.

17                  **THE COURT:** Mr. Rifkin, good morning, sir.

18                  **MR. RIFKIN:** Good morning, Your Honor.

19                  **THE COURT:** All right. And then I see Ms. Dunn and  
20 Ms. Lawyer also in the courtroom. Good morning.

21                  **MS. DUNN:** Good morning, Your Honor.

22                  **MS. LAWYER:** Good morning, Your Honor.

23                  **THE COURT:** Let's start, as we always do, with things  
24 to do. Just two housekeeping issues for me. First of all, I  
25 appreciate getting the pictures of witnesses per my standing

1 order from the plaintiffs, although I did note and not  
2 unsurprisingly, I don't have pictures of Apple -- of the Apple  
3 witnesses that you called.

4 And, Mr. Doren, I would like to get those pictures,  
5 please, from your side.

6 **MR. DOREN:** We will solve that immediately,  
7 Your Honor.

8 **THE COURT:** They're probably not here. In general, I  
9 like to have them taken the day of because sometimes all those  
10 photos that people have for their corporate -- they don't  
11 always look like we look in real life.

12 **MR. DOREN:** We all just keep getting better looking,  
13 Your Honor.

14 **THE COURT:** Well, Dr. Evans, I think, has aged a  
15 little bit from the pictures that we saw in the slide deck,  
16 so... okay.

17 And then the binders. We are collecting a huge number of  
18 binders over here. If each side would please send someone up  
19 to collect theirs. I think we still have some from -- well,  
20 there is a whole stack. Maybe two of you could come up and  
21 grab those and then split them between you.

22 Okay.

23 **MS. FORREST:** Would you like us to do that right now,  
24 Your Honor, clear it off?

25 **THE COURT:** You don't have to, Ms. Forrest.

1                   **MS. FORREST:** Well, I'm as good as anyone.

2                   **THE COURT:** Okay.

3                   Well, Ms. Forrest, do you have anything on your list or  
4                   Mr. Bornstein?

5                   **MS. FORREST:** Your Honor, we do not have any  
6                   housekeeping matters this morning.

7                   **THE COURT:** Okay. Mr. Doren, how about you?

8                   **MR. DOREN:** No, Your Honor.

9                   **THE COURT:** All right.

10                  Do we know -- how are we doing in terms of witnesses on  
11                  timing? Are we on track? Not on track? I have after Evans,  
12                  Professor Athey.

13                  **MS. FORREST:** Yes, Your Honor. After Professor  
14                  Evans, we will have Ms. Athey, who we would expect to go on  
15                  the stand as soon as the -- Mr. Bornstein finishes and the  
16                  cross-examination is completed.

17                  And then after that, we will go into the Apple experts.

18                  **THE COURT:** Okay. All right. Then, Mr. Evans, if  
19                  you come on back, I think we are ready for you.

20                  Do we have a date certain when Mr. Cook will be here? We  
21                  have been asked on that topic from the press.

22                  **MR. DOREN:** Let us do some math on that, Your Honor,  
23                  and report back. It will be the last day of our case, we  
24                  believe.

25                  **THE COURT:** Okay. All right.



1 So, sir, good morning.

2 **THE WITNESS:** Good morning, Your Honor.

3 **THE COURT:** You are still under oath. Do you  
4 understand that?

5 **THE WITNESS:** I understand.

6 **THE COURT:** Mr. Bornstein, you may proceed.

7 **MR. BORNSTEIN:** Thank you, Your Honor. I have just  
8 two administrative matters to start with.

9 One is the parties have made great progress, I believe, in  
10 dealing with some of the evidentiary issues dealing with the  
11 expert directs, and with your permission, we would hand up  
12 what is just an updated copy of the written direct from  
13 Dr. Evans which now is almost completely unredacted and has  
14 redacted only the materials that were the subject of the  
15 objection that Your Honor sustained yesterday with respect to  
16 the Korean issues, and we would ask that Court accept that in  
17 lieu of the version that was provisionally entered yesterday.

18 **THE COURT:** Okay. Mr. Swanson, I take it?

19 **MR. SWANSON:** Swanson, Your Honor.

20 **THE COURT:** You are going to be doing this one?

21 **MR. SWANSON:** I will be doing this one.

22 **THE COURT:** That is acceptable to you, or you can  
23 confirm?

24 **MR. SWANSON:** I think under the same arrangement,  
25 Your Honor, that it is provisional subject to connecting up

1 with matters that have not yet come into evidence.

2 **THE COURT:** Okay. So go ahead, Mr. Bornstein.

3 Do I take it -- will I get a redlined version of this, or  
4 can I -- I would like a redlined version when we're all done,  
5 and I say that because I've already read multiple times his  
6 testimony and have my notes on the original one. So perhaps  
7 I'll read it again, but it would be very -- it would be much  
8 easier for me if I know what was taken out so if once you're a  
9 hundred percent done, if I could get a redlined version, that  
10 would be helpful.

11 **MR. BORNSTEIN:** Of course, Your Honor. In the  
12 interim, I can let the Court know right now the two are  
13 identical, and in the one place where there is a change,  
14 rather than taking it out, we have blacked out the paragraph  
15 so we maintained the paragraph numbers.

16 **THE COURT:** So it's all the same. It's just been  
17 redacted?

18 **MR. BORNSTEIN:** Correct, Your Honor.

19 **THE COURT:** I see.

20 **MR. BORNSTEIN:** But we can provide the redline if  
21 that is still helpful.

22 **THE COURT:** No. That's fine. I don't need it, if  
23 that's all it did.

24 You may proceed.

25 **MR. BORNSTEIN:** I did have one other housekeeping

1 matter.

2 Your Honor yesterday requested that we identify for the  
3 Court a document that Dr. Evans referred to from Microsoft.

4 **THE COURT:** Yes.

5 **MR. BORNSTEIN:** That's a document that actually, as  
6 it turns out, both sides have on their exhibit list as to  
7 which we have a 902(11) declaration from a custodian of  
8 records at Microsoft. So I would just offer the document into  
9 evidence. It's PX2477.

10 **THE COURT:** 2477. No objection?

11 **MR. SWANSON:** This was not offered during  
12 Ms. Wright's testimony, Your Honor. We understand that would  
13 be accepted now not for the truth of the matters asserted  
14 therein but as the basis for Dr. Evans's understanding that he  
15 testified to yesterday.

16 **MR. BORNSTEIN:** Your Honor, we have a 902(11)  
17 declaration establishing that this is a business record, and  
18 there has been no objection to the document.

19 **THE COURT:** I am being told that there is an  
20 identical document, 5523.

21 **MR. BORNSTEIN:** Yes. 5523 is the same document,  
22 Your Honor.

23 **THE COURT:** It's already in evidence.

24 **MR. BORNSTEIN:** Okay. This is a few bad extra  
25 minutes that we have now spent.

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1                   **THE COURT:** Let me just double check that. I don't  
2 think there is a need if it's already in evidence. So 5523.  
3 No. I don't show that as in evidence, but maybe it's -- we  
4 will figure it out. Let me figure it out, Mr. Bornstein, but  
5 why don't you go ahead and proceed with your examination.

6                   **MR. BORNSTEIN:** All right. Thank you, Your Honor.

7                                   **DAVID EVANS,**  
8 called as a witness for the Plaintiff, having been previously  
9 duly sworn, testified further as follows:

10                                   **DIRECT EXAMINATION (resumed)**

11                   **Q.** Dr. Evans, good morning again.

12                   **A.** Good morning to you.

13                   **Q.** When we finished yesterday, we were talking about  
14 payments, and I thought it would be helpful -- can you tell us  
15 if you put together a slide that summarizes the opinions that  
16 you've reached regarding Apple's restrictions in the payment  
17 solution area?

18                   **A.** Yes, I have.

19                   **Q.** All right. Can we get slide 38, please.

20                   Can you please walk the Court through the opinions that  
21 you formed relating to the restrictions on in-app payment  
22 solutions.

23                   **A.** Yes. Just very quickly, I have identified two separate  
24 products, IOS app distribution and iOS in-app payment  
25 solutions. I have determined that the relevant market is iOS

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1 in-app payment solutions for digital content and that Apple  
2 has been a power in that market.

3 I have determined that there have been anticompetitive  
4 effects in the payment solution market.

5 And then finally, I have concluded that there is a tie  
6 between iOS app distribution and iOS in-app payment solutions.

7 **Q.** Great. We're not going to cover all of these today, but I  
8 do want to dive into a few.

9 First of all, on the question of separate products, are  
10 there functional differences between iOS app distribution and  
11 iOS in-app payment solutions that you have identified and that  
12 were relevant to your analysis?

13 **A.** Yes. There are dramatic functional differences between  
14 the two.

15 **Q.** Okay. So with reference to slide 39, can you explain the  
16 functional differences that you're talking about?

17 **A.** Yes. I think we've covered this before so I will be very  
18 brief on this.

19 So app distribution really involves the matching process  
20 between app users and app developers via search and discovery,  
21 ultimately concluding with the ability of the user to download  
22 and then use an app.

23 In-app purchase is something that happens later and that  
24 involves transactions that are between the app user who has  
25 that app and the -- and the app developer who has supplied

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1 that app, so those are transactions that take place between  
2 those two parties after the app has already been distributed.

3 **Q.** More generally, is there a principle that economists use  
4 to assess whether or not two products are separate products or  
5 not?

6 **A.** Yes, there is.

7 **Q.** And what is that?

8 **A.** That is whether there is separate demand for those two  
9 products, whether the markets can sustain separate demand.

10 **Q.** Well, can you give -- to illustrate the point, can you  
11 give an example of products that are sold together for which  
12 there is not separate demand?

13 **A.** So a trivial example are left shoes and right shoes. They  
14 could be provided separately, but a person or people would  
15 like to get both left and right so they are provided together.  
16 So there is single demand for left and right shoes.

17 **Q.** How about shoes and socks?

18 **A.** Those -- those are separate products. They are separate  
19 products because consumers typically buy socks separately from  
20 shoes. They may get them at the shoe store, but they could  
21 also get them separately and often do. So there is separate  
22 demand for those two products, and that's how they are  
23 supplied in the marketplace.

24 **Q.** All right. And how did you assess whether app  
25 distribution and in-app purchase are separate products under

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1 that principle?

2 **A.** I looked at market evidence to determine whether there was  
3 in fact separate demand for payment solutions versus app  
4 distribution.

5 **Q.** And do you have a slide that summarizes the evidence on  
6 which you relied?

7 **A.** I do.

8 **Q.** Let's take a look at slide 40. Let's take the first basis  
9 you identified here which is that apps offering physical goods  
10 and services use their own payment solutions and that they  
11 cannot and do not use IAP. Can you explain what that means?

12 **A.** Yes. Well, first of all, physical apps that are selling  
13 things to their customers with the apps.

14 **Q.** I'm sorry. Can I interrupt you? You used the phrase  
15 "physical apps." What do you mean by that?

16 **A.** So I -- just as a shorthand for this, when I use the term  
17 "physical apps," I'm using that shorthand to refer to apps  
18 where the app is being used to ultimately sell a product or  
19 service that is consumed in a physical setting. So if I could  
20 just use the term "physical app" that is shorthand, that would  
21 save us a few words and a little bit of time.

22 **Q.** Okay. And so you were talking about how the physical apps  
23 are treated.

24 **A.** Yes. Well, the physical apps are treated by Apple in that  
25 they are not required to use IAP and, in fact, cannot use IAP

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1 because Apple does not offer that payment solution to them.

2 Physical apps have their own payment solutions when they need  
3 to take payment and they -- they develop those apps, they hire  
4 their own payment processors. In some cases, the developer is  
5 also providing a similar app on -- on a PC, on Windows or Mac,  
6 and they have a payment solution that they are using generally  
7 for the purpose of their -- of their business.

8 **Q.** Have you seen, in your review of this case, any evidence  
9 of situations where Apple gave what you're calling physical  
10 apps the option to use the IAP solution?

11 **A.** Yes, I have.

12 **Q.** And what evidence are you referring to?

13 **A.** So a few years ago, Uber and Lyft both introduced a ride  
14 subscription service where consumers could pay up front that  
15 would enable them to get the discounts on rides and some other  
16 benefits. Apple initially decided to apply IAP to that and  
17 require IAP to be used there. Ultimately it backed out on  
18 that, and instead what it did was it offered Uber and Lyft the  
19 option of using IAP, and in both cases, Uber and Lyft decided  
20 not to and to use their own payment solutions.

21 **Q.** And so taking this altogether, how does the evidence that  
22 we just talked about factor into your assessment of whether  
23 there is separate demand for these two products?

24 **A.** It provides evidence that there is separate demand for  
25 payment solutions. These are all situations where the --



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1 where the developer of the physical app is also relying on the  
2 App Store for distribution services.

3 **Q.** Okay. So what should we call the opposite of a physical  
4 app? Is that a digital app?

5 **A.** I would call it a digital app if we want to save words.

6 **Q.** Well, your second basis here on the slide says, "Apps  
7 offering digital goods choose their own payment solution when  
8 given a choice." What evidence have you seen of that  
9 happening?

10 **A.** There are -- there are certain situations for both the App  
11 Store and for the Google Play Store where apps that are  
12 providing digital -- that are selling digital content in the  
13 app have not had to use the payment solution of either of  
14 those stores.

15 **Q.** And did you put together a little chart showing some of  
16 these -- some of these apps?

17 **A.** I have.

18 **Q.** All right. Let's take a look at slide 41. Are these  
19 Amazon Prime Video, Altice One, and Canal+ the examples that  
20 you saw on Apple?

21 **A.** Yes.

22 **Q.** What were the examples you saw on the Google Play Store?

23 **A.** On the Google Play Store, up until recently, Google took  
24 the position -- Google did not force its IAP. Google did not  
25 require certain apps to use Google Play billing in the sense

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1 that it didn't enforce any requirement. These apps are ones  
2 that up until recently Google did not enforce the requirement.

3 In each of these cases, the app -- Tinder, Hulu, Netflix and  
4 Spotify -- chose to use their own payment solution as opposed  
5 to using Google Play billing, even though they had the option  
6 of using either of those.

7 **Q.** The third item on the prior slide referred to developers  
8 seeking to use their own payment solutions. What evidence did  
9 you see of that?

10 **A.** There -- there's evidence, I think in the record here that  
11 we know about, that a number of -- a number of large  
12 developers have come to Apple and have sought to use their own  
13 payment solution. Those include Facebook, Microsoft, Epic,  
14 obviously Spotify, and so forth.

15 **Q.** And then your last basis refers to consumers choosing  
16 developer payment solutions when given the choice. What  
17 evidence did you see of that happening?

18 **A.** So there are two pieces of evidence on that. Tinder,  
19 before it was required to use Google Play billing, offered  
20 Tinder users on the Android app -- gave them the option of  
21 using either the Tinder payment solution or using Google Play  
22 billing.

23 **Q.** And I'm going to interrupt you for just one second,  
24 Dr. Evans, to alert you that there is a confidentiality issue  
25 here where there is a matter that is under seal, so in

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1 describing this, just don't reveal any numbers that you may be  
2 aware of about the choices that consumers made.

3 **A.** Okay. So with that -- with that warning, a substantial  
4 portion of consumer demand chose to use the Tinder payment  
5 solution versus the Google Play billing solution.

6 **Q.** Very good.

7 And, Your Honor, the specific numbers are in Mr. Ong's  
8 testimony, but Your Honor granted a motion to seal that  
9 specific number.

10 **THE WITNESS:** If I could add one other -- one  
11 important economic fact there. In that case, the -- the price  
12 that was offered to the consumer for both the Tinder payment  
13 solution and for the Google Play option, those prices were the  
14 same.

15 **BY MR. BORNSTEIN:**

16 **Q.** Let's turn to your market definition here. Just briefly,  
17 what is the market that you have defined for purposes of  
18 analyzing the payment restrictions?

19 **A.** It is the -- it is the payment solution -- the provision  
20 of payment solutions by Apple for iOS apps.

21 **Q.** And --

22 **A.** For digital content.

23 **Q.** I see. And how did you reach this market definition?

24 **A.** I reached this market definition by thinking about this in  
25 terms of a hypothetical monopolist who does the following

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1 thing. It -- it says to develop -- to digital content  
2 developers that you must use my -- my payment solution and  
3 asks the question whether that hypothetical monopolist would  
4 be able to impose that on those digital content app developers  
5 for iOS and be able to increase the price that those  
6 developers would have to pay for a payment solution by a small  
7 but significant amount. So that's the starting point.

8 In this case, the hypothetical monopolist is the actual  
9 monopolist for this, which is Apple, and I've done further  
10 analyses to determine that Apple, as the actual monopolist,  
11 has been able to increase the price for using payment  
12 solutions by a significant amount.

13 **Q.** And are the details of that analysis in your written  
14 testimony?

15 **A.** Yes, they are.

16 **Q.** One other question on market definition. You said this --  
17 your market refers to -- or is bounded by payment solutions  
18 for apps that offer digital goods; is that correct?

19 **A.** That's correct.

20 **Q.** Wouldn't it be possible for app developers that offer  
21 items for sale through in-app purchase to evade this  
22 restriction by changing their business model and offering  
23 advertising or monetizing their app in some other way?

24 **A.** Well, hypothetically anything is possible, but as a  
25 practical matter and as a business matter, if they could do

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1 that, they would have done that to evade the 30 percent  
2 commission, but in addition to that, when an entrepreneur or  
3 business comes into a market, they do that identifying a  
4 business model and product and service that they're going  
5 to -- to offer. So saying that they could have done another  
6 business is not really a very realistic thing to say to a  
7 developer.

8 **Q.** You testified that Apple is the actual monopolist in this  
9 market. Did you put together a slide summarizing the basis on  
10 which you reached that conclusion?

11 **A.** I did.

12 **Q.** Let's take a look at slide 42, please. Just very briefly,  
13 Dr. Evans, can you summarize the grounds on which you relied?

14 **A.** Yes. For all intents and purposes, Apple is the  
15 monopolist in terms of providing payment solutions to digital  
16 content, digital content apps. So it is -- it is the  
17 monopolist.

18 **THE COURT:** Well, not all digital content apps; its  
19 own digital content apps.

20 **THE WITNESS:** Yes. That's correct. Digital content  
21 apps for iOS.

22 **THE COURT:** For Apple products.

23 **THE WITNESS:** For Apple products, that's correct.

24 **BY MR. BORNSTEIN:**

25 **Q.** And when you say "for Apple products," are you talking

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1 about apps that are offered on Apple devices, or do you mean  
2 Apple-branded apps themselves?

3 **A.** I mean third-party digital content apps that are being  
4 distributed on the App Store.

5 **Q.** Thank you.

6 And can you briefly summarize the remaining grounds on  
7 which you relied here?

8 **A.** Yes. I have also determined that Apple has been able to  
9 raise the fees for using payment solutions above what would  
10 occur in a competitive market where digital content developers  
11 are given the option of using IAP versus their own payment  
12 solution.

13 **Q.** And staying on the question of which apps are affected  
14 here and whether they are third-party apps on iOS devices and  
15 otherwise, did you see any evidence of the amount, total  
16 amount of commerce that was affected by these restrictions?

17 **A.** Yes.

18 **Q.** And what was that?

19 **MR. SWANSON:** Can I caution that I believe the  
20 specific number is under seal?

21 **MR. BORNSTEIN:** It is not my understanding. It's an  
22 app antedate. It's not Apple-specific information, to my  
23 understanding.

24 **MR. SWANSON:** I believe it has been redacted from the  
25 report.

**EVANS - DIRECT RESUMED - BORNSTEIN**

1                   **THE COURT:** Why don't we look at the report you just  
2 handed me. What is the paragraph number from his direct?

3                   **MR. BORNSTEIN:** Just one second, Your Honor. It is  
4 paragraph 288. I see Mr. Swanson is correct, that this has  
5 been sealed.

6                   **THE COURT:** Okay. Let's have you ask a new question.

7                   **MR. BORNSTEIN:** Sure.

8                   **Q.** Have you put the amount of commerce that was affected by  
9 this restriction in your written direct?

10                  **A.** I have.

11                  **Q.** Thank you.

12                  Thank you, Mr. Swanson, for getting us around that problem  
13 as well.

14                  When you say that Apple has enforced its IAP requirement  
15 by blocking developers, what are you referring to?

16                  **A.** To the extent that an app developer doesn't use IAP and  
17 therefore Apple's payment solution for the purchases of in-app  
18 content, either the app doesn't get approved for distribution  
19 within the App Store, or if there is a modification to the app  
20 which tries to use another payment solution, Apple blocks that  
21 app from participating in the App Store.

22                  **Q.** Did you form an opinion on whether Apple's conduct with  
23 respect to payment solutions has had any competitive effects?

24                  **A.** I have.

25                  **Q.** And do we have a slide that shows the basis on which you

**EVANS - DIRECT RESUMED - BORNSTEIN**

1 reached that conclusion?

2 **A.** Yes.

3 **Q.** Let's pull up slide 43. I think we just talked about the  
4 first item here, the foreclosure of competing payment solutions  
5 and the volume that is reflected in the sealed number.

6 Can you tell us how you reached the conclusion that Apple  
7 substantially raised the price of payment solutions?

8 **A.** Yes. I considered a very conservative counterfactual  
9 where Apple did not require developers to use IAP and  
10 considered the situation where a small portion of developers  
11 then chose to use their own payment solutions, so I did a --  
12 made a very conservative assumption that given the option that  
13 20 percent of digital content apps by revenue use their own  
14 payment solution and the remaining 80 percent decide to use  
15 IAP at Apple's current prices. So that's the counterfactual  
16 competitive market which is very conservative because most  
17 developers are still using IAP. And I determined the  
18 competitive price that would arise in that market which is the  
19 weighted average of the price that the developers who chose to  
20 use their own payment solutions would pay and the price that  
21 developers that chose to use IAP would pay, and based on that,  
22 I determined that the commission rate in that very, very  
23 conservative scenario is -- and the precise number is in my  
24 written direct -- are roughly 23 percent. I think it's 23.2  
25 percent, which is substantially lower than the commission rate



## EVANS - DIRECT RESUMED - BORNSTEIN

1 that Apple actually charges.

2 **Q.** And to be clear, are you opining that that's what the  
3 commission -- would you like some water?

4 **A.** In a minute. I think I'm okay for now.

5 **Q.** Are you opining that that is the commission rate that  
6 would actually occur in a competitive environment?

7 **A.** No. I think it would be much lower, but as I said, that  
8 is a conservative scenario of what would happen in the absence  
9 of the requirement.

10 **Q.** Going on to the next -- a little further down on the items  
11 on your slide, you refer to this restriction as impacting the  
12 quality of payment solutions. What are you referring to  
13 there?

14 **A.** I'm referring to a couple of the consequences of the  
15 restriction on the ability of developers to offer good payment  
16 solutions from their standpoint and also from the standpoint  
17 of their -- of their customers. So these are non-price  
18 aspects of the consequences requiring developers to use the  
19 Apple, in effect, one-size-fits-all solution versus going out  
20 and having their own customized solutions.

21 **Q.** And your last item here refers to reducing innovation.  
22 What type of innovation is there in payment solution  
23 technology and service?

24 **A.** It's a very -- it's a very innovative business and has  
25 been for about the last decade or so. With the boom in

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1 E-commerce, there are a lot of innovative payment processing  
2 firms who have come in the service online, and they work with  
3 developers to create payment solutions that are customized to  
4 their needs. And both the ability of developers to go out and  
5 work with these innovative online payment processors is a  
6 source of innovation in this business, and it's also the  
7 process of collaboration between a developer and -- and -- and  
8 online payment processors because by collaborating, they can  
9 work together to develop solutions that are new and improved  
10 for that developer's business.

11 That kind of innovation isn't -- isn't available to  
12 developers that are required to use Apple's IAP method and,  
13 again, Apple's payment solutions that that's connected to.

14 **Q.** And taking all of these effects together, what is your  
15 opinion on how the IAP restriction that Apple imposes has  
16 affected consumers?

17 **A.** My conclusion is that it has harmed consumers by raising  
18 prices to developers. Developers pass on typically -- we  
19 expect developers to pass on some portion of their fees on to  
20 consumers in the form of higher prices so consumers end up  
21 paying higher prices as a result of that, even though it's not  
22 necessarily visible to them that that's a result of Apple's  
23 behavior.

24 In addition, when we talk about payment solutions,  
25 consumers are on the other side of the payment solutions so

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1 when a consumer goes to a developer's mobile app, they are  
2 interacting with the payment solution so things like the  
3 problems with customer support that we talked about earlier in  
4 the context of the Tinder versus Starbucks app, they are on  
5 the other side of the -- of the developer not being able to  
6 effectively handle customer complaint issues directly rather  
7 than relying on Apple to do that.

8 **Q.** Thank you, Dr. Evans. I have no further questions.

9 **A.** Thank you.

10 Your Honor, if I could just get a drink of water?

11 **THE COURT:** Yes. And while you are getting ready,  
12 Mr. Swanson, I have previously admitted, with no objection  
13 from Mr. Srinivasan, PX2477, which is the same document that  
14 you were referencing, so I don't see the need to admit two.

15 **MR. BORNSTEIN:** Very good. Thank you, Your Honor.

16 **THE COURT:** Thank you for the cite.

17 **CROSS-EXAMINATION**

18 **BY MR. SWANSON:**

19 **Q.** Good morning, Dr. Evans.

20 **A.** Good morning, Mr. Swanson.

21 **Q.** Let me adjust the mic so I can be heard. Please let me  
22 know if I my voice drops.

23 Dr. Evans, you're the chairman of a consulting firm,  
24 Global Economics; correct?

25 **A.** That's correct.

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1       **Q.** And you and your firm were engaged before this litigation  
2 commenced; correct?

3       **A.** That's correct.

4       **Q.** You've also been retained in Epic's lawsuit against  
5 Google; right?

6       **A.** I don't know that we have been formally retained. We  
7 haven't done any -- we haven't done any substantive work on  
8 that. I guess we've been retained, but it's -- our particular  
9 role in that is not -- is not laid out at this point.

10      **Q.** So the answer is yes, you've been retained?

11      **A.** Yes.

12      **Q.** Now, you've never testified as an expert in an antitrust  
13 case before a federal district court or a state court, for  
14 that matter; correct?

15      **A.** That's correct.

16      **Q.** Dr. Evans, I'd like to focus first on your market  
17 definition. There is a lot of territory here to cover, and  
18 I've got limited time, but that seems like a good place to  
19 start.

20             You understand that Apple's experts have defined one  
21 relevant market in this case; right?

22      **A.** I do.

23      **Q.** Okay. And your opinion is that there are three different  
24 relevant markets in this case: Smartphone operating systems,  
25 iOS app distribution, and payment solutions. Is that fair?

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1       **A.**   That's correct.

2       **Q.**   All right. Let me start with the App Store.

3            You testified, at least in your written direct, that the

4   App Store is a two-sided platform; right?

5       **A.**   That's correct.

6       **Q.**   And you are an expert in platform economics, are you not?

7       **A.**   I am.

8       **Q.**   Okay. Now, the App Store is a two-sided transaction

9   platform; isn't that right?

10      **A.**   Yes, it is.

11      **Q.**   Okay. Now, in your opinion, the iOS operating system is a

12   distinct two-sided transaction platform; correct?

13      **A.**   Yes.

14      **Q.**   And you contend that the iOS operating system competes in

15   a relevant smartphone operating system market distinct from

16   the market where -- or markets in which the App Store

17   operates; is that correct?

18      **A.**   That's -- that's correct, where I understand the term

19   "distinct" as meaning that they are distinct relevant

20   antitrust markets.

21      **Q.**   Okay. So your testimony to the Court is that there are

22   two relevant transaction platform markets, each having two

23   sides; correct?

24      **A.**   That's correct.

25      **Q.**   And the two sides of your two markets are the same, app

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1 users and app developers; right?

2 **A.** That's right.

3 **Q.** And all of the developers who are on the one side of your  
4 iOS app distribution market are also present in principle on  
5 the developer's side of your smartphone OS market; right?

6 **A.** Well, that's not -- that's not -- that's sort of right but  
7 not precisely correct. I would say that for the -- for the  
8 smartphone OS market, there are app users and app developers  
9 where the app developers are creating apps for the smartphone  
10 OSs and the app users are using -- using those apps on that  
11 platform, and then in the app distribution market, it's likely  
12 that many of those, if not most, are also participating in app  
13 distribution, although at different -- at different times.

14 So it's the same generic type whether -- you know,  
15 particularly individuals are participating at the same time.  
16 That's a different matter. But there are definitely users and  
17 developers on both sides, and there is certainly a significant  
18 overlap between using the smartphone operating systems and  
19 using app distribution related to those operating systems.

20 **THE COURT:** If you are going to read from his  
21 deposition, I need a copy.

22 **MR. SWANSON:** Well, I was going to see if I need to  
23 read from the deposition first, Your Honor.

24 **THE COURT:** I'd like a copy.

25 **MR. SWANSON:** I understand that. Let's hand that up.

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1                   **THE COURT:** Go ahead. Ask your question.

2                   **BY MR. SWANSON:**

3                   **Q.** I just want to make sure I understand your answer,  
4                   Dr. Evans. So let me put the question to you with precision.

5                   Are all of the developers who are on the one side of your  
6                   iOS app distribution market also present on the developer side  
7                   of your mobile OS market in principle?

8                   **A.** In -- if the question is intended to mean is each  
9                   individual --

10                  **Q.** Could you just tell me "yes" or "no"?

11                  **A.** No, and I can explain my reason for that.

12                  **Q.** All right.

13                  Your Honor, I would direct the Court to page 243, line 24,  
14                  through page 244, line 5.

15                  **THE COURT:** Go ahead. All you need to do is read the  
16                  question and answer.

17                  **MR. SWANSON:** Okay.

18                  "Q. Are all of the developers who are on the one side of  
19                  your iOS app distribution market also present on the  
20                  developer's side of your mobile OS market?

21                  "A. Well, in -- in principle, they are. Whether they are  
22                  active participants is -- is a different matter, but in  
23                  principle, yes."

24                  **Q.** Now, let me --

25                  **MR. BORNSTEIN:** I'm sorry, Your Honor. Is there a

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1 question?

2 **THE COURT:** There doesn't need to be for impeachment.

3 He gets to read the deposition transcript, which is what he

4 just did.

5 **MR. BORNSTEIN:** I understand, Your Honor, but it's

6 improper impeachment is my objection.

7 **THE COURT:** Your objection is overruled.

8 **BY MR. SWANSON:**

9 **Q.** Dr. Evans, all of the users who are on one side of your

10 app distribution market are also present in principle on the

11 user side of your smartphone distribution market; isn't that

12 correct?

13 **A.** Yes. In principle they are.

14 **Q.** Okay. Now, you take the position that the transactions

15 between developers and users in your smartphone OS market are

16 not the same as the transactions in your iOS app distribution

17 market; right?

18 **A.** If you could -- I had trouble hearing the first part of

19 that. If you could just say that again.

20 **Q.** Yes. I would be happy to. Let me know if you are having

21 difficulty. I'm trying to adjust the mic here with my

22 welder's mask on.

23 Now, you take the position, do you not, that the

24 transactions between developers and users in your smartphone

25 OS market are not the same as the transactions in your iOS app



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1 distribution market?

2 **A.** That is -- that is correct.

3 **Q.** Dr. Evans, are paid downloads in your iOS app distribution  
4 market?

5 **A.** Yes.

6 **Q.** Are free download transactions in your iOS app  
7 distribution market?

8 **A.** Yes.

9 **Q.** Do you consider --

10 **A.** In the sense in both cases that there are services being  
11 delivered by the App Store as part of the overall provision of  
12 distribution services.

13 **Q.** You say they are services. They are transactions;  
14 correct?

15 **A.** They are transactions.

16 **Q.** Do you consider in-app purchase transactions to occur in  
17 your iOS app distribution market?

18 **A.** I do not.

19 **Q.** Where do you view those transactions -- which market do  
20 you view those transactions to be taking place?

21 **A.** So in terms -- in terms of -- of -- of transactions taking  
22 place in the sense of Apple being paid for the use of IAP,  
23 those transactions are taking place in the actual world under  
24 the restraints in the iOS -- in the payment solutions market  
25 for iOS apps. That's where those transactions are taking

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1 place given that there are restrictions.

2 But we need to be careful about talking about those as  
3 transactions because for developers who don't want to be using  
4 IAP, those are transactions only because Apple has insisted on  
5 the use of IAP; otherwise -- otherwise you don't have a  
6 willing buyer and willing seller and those transactions don't  
7 occur.

8 **Q.** Let me see if I can understand that.

9 You're saying that in-app purchase transactions in iOS  
10 apps take place in your payment solutions relevant market?

11 **A.** I think I don't understand when you're using the word  
12 "transactions" the context in which you're using them, so  
13 maybe if I could just maybe divide things up a little bit.

14 So -- so --

15 **THE COURT:** Okay. Keep going. It's -- go ahead.

16 **THE WITNESS:** There's a transaction that takes place  
17 between a developer who wants to provide digital content to a  
18 customer. That was a transaction that was taking place  
19 between that developer and that customer. So that is a  
20 transaction between those two.

21 In the case of the IAP restriction, Apple has required  
22 that it process the payments for that, so it is providing a  
23 payment solution to that developer for the purpose of that  
24 transaction between the developer and its customer.

25 So the transaction from the standpoint of Apple is the

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1 payment solution provider is the payment service that is  
2 providing to that developer and to that user.

3 **BY MR. SWANSON:**

4 **Q.** Dr. Evans, I think I need to ask the question again.

5 Do you consider in-app purchase transactions to occur in  
6 your payment solutions market? If the answer is "no" or the  
7 answer is "yes," I'd just like to know which one it is.

8 **A.** The -- the actual transaction between the developer and  
9 the consumer for the exchange of digital content is not a  
10 transaction in that market. It is the provision of the  
11 payment solution that is the -- that is the -- the service  
12 that is being provided and is therefore the transactional  
13 service that Apple is requiring the use of for that purpose.

14 **THE COURT:** Is it "yes" or "no"? I need to  
15 understand your point of view, so is it -- you've already said  
16 it's not in the second, so is it -- that is the iOS market,  
17 distribution market. So is it in the third or not?

18 **THE WITNESS:** What I'm trying to distinguish,  
19 Your Honor, it goes back to the AMEX case that I talked about  
20 earlier. I'm trying to distinguish between the provision of  
21 the payment service, which is something that Apple is  
22 providing, versus --

23 **THE COURT:** Mr. Evans, it's a transaction; right?

24 **THE WITNESS:** It is a transaction.

25 **THE COURT:** So is the transaction in the third market

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1 or not?

2 **THE WITNESS:** The -- the provision of the payment  
3 solution for that transaction is in the third market.

4 **THE COURT:** What about the transaction itself?

5 **THE WITNESS:** The transaction itself is not in that  
6 market.

7 **THE COURT:** Where is it?

8 **THE WITNESS:** It is in a market for --

9 **THE COURT:** Or does it not appear in any of your  
10 three markets?

11 **THE WITNESS:** It doesn't appear, and it goes back to  
12 the discussion we had earlier on between what developers are  
13 doing with their customers versus the provision of the payment  
14 service. So if you think about it in terms --

15 **THE COURT:** None of the in-app purchase transactions  
16 are in your three defined markets?

17 **THE WITNESS:** The provision of the payment solution  
18 for those --

19 **THE COURT:** I understand you're saying that the  
20 provision for the payment solution is different. I'm asking  
21 about these transactions themselves.

22 **THE WITNESS:** Those transactions themselves are in  
23 that market for the purposes of the payment solution. That's  
24 correct.

25 **THE COURT:** You just said they weren't in that third

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1 market.

2 **THE WITNESS:** If I could go back to the *American*  
3 *Express* example to --

4 **THE COURT:** I tell you what, I'll stop talking. Go  
5 ahead. Finish your examination, and perhaps Mr. Bornstein can  
6 clarify for me, but I shouldn't take up any more of his time.

7 Go ahead.

8 **BY MR. SWANSON:**

9 **Q.** Let me ask about a particular type of in-app transaction  
10 subscription. Do you view subscription transactions as  
11 occurring in your iOS app distribution market?

12 **A.** Yes. They are in the iOS app -- say that one more time,  
13 Mr. Swanson.

14 **Q.** Yes. Do you view subscription in-app transactions as  
15 occurring in your iOS app distribution market?

16 **A.** I do not.

17 **Q.** Now, you said paid downloads are in your iOS apps  
18 distribution market; right?

19 **A.** That's correct.

20 **Q.** I didn't hear any transactions that are in your smartphone  
21 OS market. Are there any between developers and consumers?

22 **A.** There are in the sense that the word "transaction" is  
23 being used in the definition of "transaction platforms." So  
24 the transactions from an economic standpoint that are taking  
25 place in the smartphone OS market are the -- the interactions

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1 between app users and app developers being able to standardize  
2 on that operating system and being able to use the APIs  
3 jointly and services provided by that -- by that operating  
4 system.

5 **THE COURT:** So on a technical point, can we have the  
6 mic come down lower so people on the phone can hear you  
7 better? I think if you just put it slightly below your  
8 shield, then it will pick it up.

9 **THE WITNESS:** Like this?

10 **THE COURT:** Ms. Stone will come and help you.

11 **THE WITNESS:** If I could take a water break.

12 **THE COURT:** Except she needs to --

13 **THE CLERK:** You need to have that on.

14 **THE COURT:** Go ahead. Take your water.

15 He needs some water, Frances.

16 **THE CLERK:** This bends down instead of through it, I  
17 think.

18 **THE COURT:** Okay. That's probably much better.  
19 Thank you. All right. Proceed.

20 **BY MR. SWANSON:**

21 **Q.** So are there any paid transactions that take place between  
22 developers and consumers in your smartphone operating system  
23 market?

24 **A.** No.

25 **Q.** Dr. Evans, isn't it a fact that in this case, you've

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1 sliced Apple's mobile app platform into two separate platforms  
2 in three different markets?

3 **A.** I have defined three separate markets for the purposes of  
4 analyzing the anticompetitive conduct in this case, yes.

5 **Q.** Is it your view that the relevant market or markets here  
6 wouldn't change if the complaining party was another developer  
7 instead of Epic?

8 **A.** It is.

9 **Q.** And you said that in your written direct; correct?

10 **A.** That's correct.

11 **Q.** Do you recall that Apple had to serve a subpoena on you  
12 and move to compel to obtain the presentations you made to  
13 U.S. antitrust regulators on behalf of a complainant about the  
14 App Store other than Epic?

15 **A.** I do.

16 **MR. SWANSON:** Your Honor, we'd like to hand up a  
17 binder of cross-exhibits. If I can approach the witness to --

18 **THE COURT:** You may.

19 **MR. SWANSON:** -- hand one binder up.

20 **THE WITNESS:** Would it be possible for me to qualify  
21 that answer because it's not quite accurate?

22 **THE COURT:** Okay.

23 **THE WITNESS:** I was served a subpoena where that  
24 subpoena would have covered the documents that Mr. Swanson has  
25 just described. At the point in time I got the subpoena,

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1 those documents hadn't been disclosed; rather, the subpoena  
2 implicated a set of documents that then were ultimately turned  
3 over.

4 **BY MR. SWANSON:**

5 **Q.** And in your deposition, Dr. Evans, you testified that you  
6 had never communicated with the U.S. regulator about Apple App  
7 Store matters; correct?

8 **A.** I -- I may have.

9 **Q.** Let me ask you to turn to Exhibit 5549. It should be in  
10 your binder. Let me know when you've got that.

11 **A.** I have it.

12 **Q.** All right. Do you recognize this document?

13 **A.** Yes, I do.

14 **Q.** And this is one of the documents that was produced  
15 pursuant to Magistrate Judge Hixson's motion to compel order?

16 **A.** That's correct.

17 **Q.** And this document was redacted by you to protect the  
18 identity of your client in this matter; correct?

19 **A.** That is correct.

20 **Q.** And, again, that client was not Epic; correct?

21 **A.** That is correct.

22 **Q.** It was another developer; correct?

23 **A.** That is correct.

24 **Q.** Not a game developer?

25 **A.** No.



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1 **Q.** Now, the first page of this document is entitled "Economic  
2 Analysis of Market Definition and Market Power Related to  
3 Apple's Mobile App Platform." Do you see that?

4 **A.** I do.

5 **Q.** And it says by David S. Evans. That's you; right?

6 **A.** That's correct.

7 **Q.** This is dated January 25, 2016; correct?

8 **A.** That's correct.

9 **Q.** And, in your opinion, at this point, Apple had been a  
10 monopolist for how many years?

11 **A.** Based on the analysis that I've done in this matter, since  
12 2010, so it would have been around six years.

13 **Q.** Okay. Now, is this paper submitted to a U.S. antitrust  
14 regulator?

15 **A.** Yes, it was.

16 **Q.** Okay. Do you know the identity of the regulator?

17 **A.** Yes. It was the Federal Trade Commission.

18 **Q.** Now, in this paper, you use the term "edge provider" in  
19 some instances to refer to certain types of developers. Do  
20 you recall that?

21 **A.** I do.

22 **Q.** What is an edge provider?

23 **A.** So in the context of this paper, writing in 2016, an edge  
24 provider is referring generally to internet-based businesses  
25 that are providing services over the -- over the internet.

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1                   **MR. SWANSON:** Your Honor, we would offer 5549, not  
2 for the truth of the matter asserted but as evidence of  
3 Dr. Evans's prior opinions on this subject matter related to  
4 this case.

5                   **THE COURT:** Any objection?

6                   **MR. BORNSTEIN:** No objection for that purpose,  
7 Your Honor.

8                   **THE COURT:** Admitted for that limited purpose.  
9 (Defense Exhibit 5549 received in evidence)

10                  **BY MR. SWANSON:**

11                  **Q.** Now, we will talk about 5549 in a moment, but can you flip  
12 to Exhibit 5550, which should be the next in order in your  
13 binder.

14                  **A.** Yes. I have it.

15                  **Q.** Great.

16                         Now, 5550 is a slide deck; correct?

17                  **A.** Yes, it is.

18                  **Q.** And this was also produced by you in response to  
19 Magistrate Judge Hixson's order on a motion to compel;  
20 correct?

21                  **A.** That's correct.

22                  **Q.** And this document, too, was redacted by you to protect the  
23 identity of your client; is that correct?

24                  **A.** That's correct.

25                  **Q.** Was it the same client?

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1       **A.**    It was.

2       **Q.**    Now, this slide deck is dated July 28th, 2016; correct?

3       **A.**    That's correct.

4       **Q.**    And you were involved in preparing this slide deck?

5       **A.**    I was.

6       **Q.**    And this slide deck was presented to the Federal Trade  
7       Commission?

8       **A.**    Yes, it was.

9       **Q.**    And then if you would turn to slide 32. You are probably  
10       having a better -- probably doing better on that than I am.  
11       One second. There we go.

12             Are you there, Dr. Evans?

13       **A.**    I am.

14       **Q.**    Now, that's a slide starting a segment entitled "Economic  
15       Analysis of Apple's App Store Business"; correct?

16       **A.**    That's correct.

17       **Q.**    And that segment is slides 32 through slides 36?

18       **A.**    That's correct.

19             **MR. SWANSON:** Your Honor, we would offer DX5550 not  
20       for the truth of matters asserted but as evidence of  
21       Dr. Evans's prior understanding on a subject related to this  
22       case.

23             **MR. BORNSTEIN:** No objection, Your Honor.

24             **THE COURT:** All right. Admitted for that limited  
25       purpose.

**EVANS - CROSS - SWANSON**

(Defense Exhibit 5550 received in evidence)

**BY MR. SWANSON:**

**Q.** Now, let's go to 5549. Can you, Dr. Evans, turn to the first page of text, I guess that would be the second page of the document. Are you with me?

**A.** I am.

**Q.** Okay. If you look at the numbered -- yes. It's a sentence or two in the first paragraph there. Do you see that? "Apple has significant market power in the mobile platform app services market." Do you see that?

**A.** I do.

**Q.** And that was something that you conveyed to the FTC?

**A.** Conveyed to the FTC in this paper, yes.

**Q.** And you have a footnote to that statement, and the footnote reads, "The mobile app platform is two-sided and facilitates the interactions among app users and developers." Did I read that right?

**A.** That's correct.

**Q.** And when you were referring there to the mobile app platform, you were referring to the Apple mobile app platform; correct?

**A.** That's correct.

**Q.** Now, I'd ask you to turn to page 5 of this document and focus on heading 3. Let me know when you're there.

**A.** I'm there.

**EVANS - CROSS - SWANSON**

1 **Q.** So heading 3 is "Apple's Mobile Platform." Do you see  
2 that?

3 **A.** I do.

4 **Q.** And there's a paragraph under that, and you indicate in  
5 that paragraph that Apple operates a two-sided platform for  
6 mobile app services; correct?

7 **A.** That's correct.

8 **Q.** Okay. And in this paragraph, you convey to the FTC that  
9 the Apple mobile platform consists of three components;  
10 correct?

11 **A.** That is correct.

12 **Q.** And the three components that you identified were the iOS  
13 mobile operating system, the App Store, and the iPhone and  
14 iPad devices; correct?

15 **A.** That is correct.

16 **Q.** And you concluded that paragraph by saying that "Apple is  
17 vertically integrated in the provision of the operating  
18 system, the App Store, and the hardware"; correct?

19 **A.** Yes.

20 **Q.** All right. You can put that to one side for the moment.

21 Now, I want to turn back to your current view that there  
22 are three markets here. You agree, don't you, that there is  
23 no claim in this case that Apple monopolized a smartphone  
24 operating system market?

25 **A.** I do.

**EVANS - CROSS - SWANSON**

1       **Q.** Now, you testified that the smartphone operating system  
2 market is a duopoly between Apple and Android; right?

3       **A.** That is correct.

4       **Q.** In the operating system market you've defined, no  
5 smartphone maker competes with Apple, does it?

6       **A.** If you could say that one more time for me, please.

7       **Q.** Sure. In the smartphone operating system market that  
8 you've defined, no smartphone maker competes with Apple;  
9 correct?

10      **A.** I -- I don't understand the -- the question because the  
11 smartphone operating system market refers to operating systems  
12 and not smartphone makers.

13      **Q.** Okay. So, for example, Samsung is not a competitor in  
14 your relevant smartphone operating system market; right?

15      **A.** It is not a competitor except insofar as Samsung is one of  
16 the OEMs on which consumers can get an Android operating  
17 system.

18      **Q.** Well, does that make it an operating system competitor?

19      **A.** It does not.

20      **Q.** So it's not in your market; correct?

21      **A.** That's correct.

22      **Q.** And yet you used Samsung sales among those of other  
23 smartphone OEMs in your slide showing Android market share  
24 didn't you?

25      **A.** That's correct.

## EVANS - CROSS - SWANSON

1 Q. You used device sales, not operating system sales, in your  
2 slide; right?

3 A. That's correct.

4 Q. And you would agree, wouldn't you, that each smartphone  
5 sold has just one operating system?

6 A. That's correct.

7 Q. Okay. And you agree, don't you, that Apple accounts for  
8 16 percent of smartphones sold in the world outside of China,  
9 which is your -- it's your graphic market; right?

10 A. Yes. On a unit basis, that's correct.

11 Q. And that's a figure that's taken from your opening report,  
12 albeit not reported in your written direct; right?

13 A. That's correct.

14 Q. Okay. And that figure, that 16 percent figure, is  
15 actually much lower than the figure that applied in 2012 when  
16 Apple had 22 percent of unit sales; correct?

17 A. I believe that's correct.

18 Q. Talking about devices, you don't deny that almost all game  
19 console owners own smartphones, do you?

20 A. No, not at all. They do.

21 Q. And you're not claiming that 60 to 90 percent of game  
22 console owners only play games on consoles, are you?

23 A. If you could read me that -- ask me that question one more  
24 time.

25 Q. Sure. You are not claiming that 60 to 90 percent of game

## EVANS - CROSS - SWANSON

1 console owners only play games on consoles, are you?

2 **A.** I -- I am claiming, based on the *Fortnite* data, that  
3 *Fortnite* app users who play on game consoles mainly play on --  
4 on -- on game consoles. I don't have the precise percentage  
5 in mind, but it's a high percentage.

6 **Q.** I understand you testified about *Fortnite*. I'm trying to  
7 clarify the scope of your testimony yesterday, so I'll repeat  
8 the question.

9 You're not claiming that 60 to 90 percent of game console  
10 owners only play games on consoles, are you?

11 **A.** I am not.

12 **Q.** Okay. And you're not claiming that 60 to 90 percent of  
13 game console owners only buy games on consoles, are you?

14 **A.** I'm not making that claim.

15 **Q.** Now, you've cited a survey in your written direct that  
16 indicates that almost a third of smartphone owners also have  
17 game consoles; correct?

18 **A.** Yes. I believe that's a U.S. figure.

19 **Q.** And although it's not in your written direct, in your  
20 opening report, you indicated that 50 percent of smartphone  
21 owners also have a tablet. Do you recall that?

22 **A.** I do.

23 **Q.** And you agree, don't you, based on numbers reported in  
24 your opening report that in the United States, almost half, 44  
25 percent of iPhone users own and use Macs; correct?



**EVANS - CROSS - SWANSON**

1       **A.**   That's correct.

2       **Q.**   And you agree that almost all iPhone users have a Mac or a  
3       PC?

4       **A.**   I do. If I could just qualify that by saying in the U.S.

5       **Q.**   In the U.S.

6               Now, you gave some testimony about switching costs  
7       yesterday. In your opinion, Mac owners face switching costs  
8       as well; right?

9       **A.**   They do.

10       **Q.**   Up to the time of your deposition, at least, you had not  
11       studied whether the switching costs were greater or less for  
12       Mac owners than the switching costs that iPhone owners face;  
13       right?

14       **A.**   That's correct.

15       **Q.**   And you agreed at the time of your deposition that many of  
16       the switching costs that apply to iPhone owners that you have  
17       identified also apply to Mac owners; right?

18       **A.**   That's correct.

19       **Q.**   And, in fact, all of the switching costs you identify in  
20       slides 19 to 20 that we saw yesterday also apply to the Mac;  
21       correct?

22       **A.**   The -- the opticals apply to the Mac, yes.

23       **Q.**   You don't claim that Apple has market power in the market  
24       in which Macs are sold, do you?

25       **A.**   I do not.

**EVANS - CROSS - SWANSON**

1 **Q.** Let's turn to app transactions in the App Store.

2 You indicated or you referred in your direct to the  
3 Supreme Court's *American Express* case. Do you recall that?

4 **A.** I do.

5 **Q.** And you expressed the view that you thought that the  
6 court's approach in that case was generally correct as an  
7 economic matter in your opinion; right?

8 **A.** I don't recall making that statement in my -- in my  
9 written direct. It doesn't mean that I didn't, but I don't  
10 recall making that statement.

11 **Q.** Okay. Well, let's take a look at your direct, paragraph  
12 22, page 7.

13 **A.** Excuse me, Mr. Swanson. Again, which exhibit?

14 **THE COURT:** It's your direct. It should be  
15 separately tabbed.

16 **MR. SWANSON:** If you don't have it, I'm sure we can  
17 find a copy for you.

18 **THE WITNESS:** I have it right here.

19 **MR. SWANSON:** Okay, great.

20 **THE COURT:** It was in the binder that your attorney  
21 gave to you yesterday.

22 **THE WITNESS:** I have it.

23 **BY MR. SWANSON:**

24 **Q.** Okay. And could you -- well, take a look at paragraph 22,  
25 and my question for you is were you not intending to convey by

## EVANS - CROSS - SWANSON

1 this that you thought the Supreme Court's decision in *American*  
2 *Express* was generally correct as an economic matter?

3 **A.** So I believe the Supreme Court's decision in *American*  
4 *Express* is generally correct as an economic matter. This  
5 sentence is a bit more precise than that, but I do agree that  
6 the Supreme Court's decision in *American Express* is sound as  
7 an economic matter.

8 **Q.** All right. Thank you, Dr. Evans. Fair enough.

9 Now, as an economic matter, do you agree with *American*  
10 *Express* that two-sided transaction platforms facilitate a  
11 single simultaneous transaction between participants?

12 **A.** I do.

13 **Q.** And that is something the App Store does, don't you agree?

14 **A.** I -- I do with the -- with the qualification that when  
15 economists talk about simultaneous, it's a bit looser than the  
16 word itself might suggest, but, yes, I do agree with that.

17 **Q.** Okay. Do you agree that two-sided transaction platforms  
18 exhibit more pronounced indirect network effects?

19 **A.** Yes.

20 **Q.** And that is true of the App Store; correct?

21 **A.** If I could maybe just qualify that a little bit. So  
22 two-sided transaction platforms generally have significant  
23 indirect network effects. It's not that they're more  
24 pronounced. It's that a characteristic of two-sided  
25 transaction platforms is that they tend to have significant

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1 indirect network effects between the two sides.

2 **Q.** And that is true of the App Store?

3 **A.** I believe so, yes.

4 **Q.** I'm sorry. Did you say "yes"?

5 **A.** Yes.

6 **Q.** Do you agree as an economist that transaction platforms  
7 are better understood as supplying only one-product  
8 transactions?

9 **A.** I -- I do, with the qualification that the -- that the  
10 product they're providing is generally a set of services that  
11 is facilitating a transaction, so a payment card, networks  
12 like American Express, is providing payment services that is  
13 facilitating a transaction between two other parties in that  
14 case.

15 **Q.** Do you agree that the App Store is better understood as  
16 supplying only one-product transactions?

17 **A.** I believe those words don't really accurately characterize  
18 what the App Store is doing as a -- as a distributor. As a  
19 distributor, they are providing distribution services that  
20 facilitate the distribution of apps from developers to  
21 consumers. The term "transaction" gets then a little bit  
22 bollixed up because we are using "transactions" in different  
23 ways, but ultimately that is a transaction.

24 **Q.** Well, there is no difference between distribution services  
25 and transactions, as you use the term, is there?

**EVANS - CROSS - SWANSON**

1       **A.**    There is not.

2       **Q.**    So let me come back to it. As an economist, then, how  
3       many products is the App Store best understood as supplying?

4       **A.**    The -- the App Store is providing -- the Apple App Store  
5       is providing two broad products. One is app distribution  
6       services and the other is the App Store is providing a -- a  
7       payment solution for in-app payments.

8       **Q.**    Are those services complements or substitutes? Shoes and  
9       socks or left shoes and right shoes?

10      **A.**    I would -- I would not use the shoe and shock --  
11      shoes-and-sock analogy there. For -- for some developers,  
12      those would be complements. For other developers, they could  
13      be independent goods. But for some developers, some  
14      developers might like to both get app distribution services  
15      and might also like to get a payment solution, and in that  
16      sense, they're -- they're complementary.

17      **Q.**    Dr. Evans, you stated in your written direct that your  
18      analysis of competitive effects would not change if the app  
19      distribution market you defined includes Android. Do you  
20      recall that?

21      **A.**    That's correct.

22      **Q.**    You refer to that as a two-brand market; right?

23      **A.**    That's correct.

24      **Q.**    And that's two-brand, in your term, app distribution  
25      market?

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1     **A.**   That is a two-brand app distribution market, that's  
2     correct.

3     **Q.**   And in that two-brand market, Google Play would be a  
4     competitor; right?

5     **A.**   Google Play would not be a significant competitor in that  
6     market for the reasons I discussed in my written testimony.

7     We could define it as a two brand --

8     **Q.**   Dr. Evans, I just asked if Google Play would be a  
9     competitor in the market. Is the answer "yes"?

10    **A.**   It would not be a meaningful competitor.

11    **Q.**   I'm sorry. I didn't hear you.

12    **A.**   It would not be a meaningful competitor.

13    **Q.**   So you're saying it would not be a competitor in the  
14    two-brand market?

15    **A.**   I am saying it would not be a significant meaningful  
16    competitor for the reasons I've identified.

17    **Q.**   Dr. Evans, I understand you want to characterize the  
18    extent of competition, but I'm trying to understand what you  
19    mean by a two-brand market. So would Google Play be a  
20    competitor in that market?

21    **A.**   It would not be a -- a significant meaningful competitor  
22    in that market for the reasons I've discussed concerning  
23    for-market competition.

24    **Q.**   Would the Samsung Galaxy store be a competitor in that  
25    two-brand market?

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1       **A.**    I would give you the same answer.

2       **Q.**    Would the Amazon App Store be a competitor in that  
3       two-brand market?

4       **A.**    Same answer in terms of the -- the extent of competition.

5       **Q.**    Can you identify any Android App Store that would be a  
6       competitor in that two-brand market?

7       **A.**    I cannot identify in that -- in that two-brand market any  
8       Android App Store that would be a significant competitor and  
9       therefore a material constraint on -- on Apple in that market.

10      **Q.**    In this two-brand market in which you say you'd reach the  
11      same conclusions about competitive effects, would Android app  
12      transactions be reasonably interchangeable with iOS app  
13      transactions?

14      **A.**    They would not be.

15      **Q.**    So can you identify any competitor in your two-brand  
16      market other than Apple?

17      **A.**    In my two-brand market, the -- the App Store doesn't face  
18      any material competitive constraints. We can list other --  
19      other app stores for Android in that two-brand market, but I  
20      would reach the conclusion that those app stores would not  
21      provide a meaningful competitive constraint on the -- on the  
22      App Store and would not be -- would not be substitute  
23      suppliers for developers or users for the app -- for iOS app  
24      users and developers.

25      **Q.**    Well, if you define a market to include two brands, don't

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1 you need two substitute brands?

2 **A.** The -- the answer is not necessarily. So it's a --

3 **Q.** That's your answer. I understand.

4 Is Apple a monopolist in your two-brand market?

5 **A.** Apple is in effect a monopolist in the two-brand market in  
6 the sense that Apple has substantial -- has monopoly power.

7 **Q.** Well, it has a hundred percent market share, in your view,  
8 since there are no competitors; correct?

9 **A.** In -- in the -- in the two-brand market, I am defining it  
10 to say that in a hypothetical -- in a two-brand market with  
11 the Android and iOS app distribution, that Apple is not really  
12 a monopolist because I am saying there is also Android app  
13 distribution out there. However, I am also saying that if one  
14 were to assume a two-brand market, that the Android app stores  
15 are not meaningful constraints on Apple for all the reasons  
16 that I identified with the single-brand market, and therefore,  
17 Apple would have monopoly power in that market, even though it  
18 would not literally be a monopolist just because we've made  
19 this -- this distinction between one brand and two brands.

20 **Q.** Can you just tell me what Apple's market share would be in  
21 your two-brand market?

22 **A.** Apple's market share of app distribution in the two-brand  
23 market would be roughly -- roughly 50 percent, in the  
24 two-brand market.

25 **Q.** And so your opinion as an expert in antitrust economics is



**EVANS - CROSS - SWANSON**

1 that Apple would be a monopolist with a 50-percent market  
2 share?

3 **A.** My -- my testimony and my opinion is that were we to take  
4 a two-brand market, that Apple would have monopoly power in  
5 that market, but by definition since we are talking about a  
6 two-brand market, it's not a monopolist in the sense of share,  
7 but it has monopoly power because of the inability of  
8 developers and users to substitute from the App Store to  
9 Android stores.

10 **Q.** So market share has no bearing on your conclusion about  
11 monopoly power in that instance?

12 **A.** In that instance, it does not.

13 **Q.** Now, Dr. Evans, you stated in your written direct that it  
14 doesn't matter to your ultimate opinions if the relevant  
15 geographic market is a U.S. market instead of the global minus  
16 China market that you've defined; correct?

17 **A.** That's correct.

18 **Q.** And similarly, you've indicated that none of your  
19 conclusions would be affected if the smartphone OS market  
20 you've defined is a U.S. market instead of a global minus  
21 China market; correct?

22 **A.** That's correct.

23 **Q.** And you've also indicated in your written direct that your  
24 ultimate opinions would not change if the app distribution  
25 market you've defined is a single-sided market instead of a

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1 two-sided platform market; is that correct?

2 **A.** A single-sided -- a single-sided market that is linked  
3 from the developer side to a single-sided market on the user  
4 side, that's correct.

5 **Q.** You agree that the iOS app distribution market that you  
6 defined is not a cluster market; correct?

7 **A.** That's correct.

8 **Q.** So is it your opinion that all app transactions in the App  
9 Store are substitutes for one another?

10 **A.** No. They're not substitutes for each other in the same  
11 sense that transactions at a restaurant aren't substitutes for  
12 transactions -- payment card transactions at a restaurant  
13 aren't substitutes for payment card transactions at a clothing  
14 store.

15 **Q.** So the answer is "yes," in your opinion?

16 **A.** There is no assumption that they're substitutes. They're  
17 different products.

18 **Q.** Well, perhaps I'm not following you.

19 Is it your opinion then that none of the app transactions  
20 on the App Store are substitutes for one another?

21 **A.** That is not my -- that is not my testimony. If we're  
22 talking about -- if I could explain?

23 **Q.** Well, I just want to make sure I heard it right. I may  
24 have misheard you. Let me ask this question.

25 Is it your opinion that non-game app transactions in the

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1 App Store are substitutes for game app transactions?

2 **A.** The -- the -- I'm taking your word "transaction" to be  
3 referring to app distribution services, and from the  
4 standpoint of -- of -- of developers and users, distributing a  
5 game app is not a substitute for distributing a non-game app.  
6 The -- the game app is going to the App Store for distribution  
7 services of its game-to-game players and the non-game apps are  
8 going to the App Store for distribution of their apps to their  
9 users?

10 **Q.** This seems like an important point, so let me make sure I  
11 nail it down and understand it.

12 Is it your opinion that non-game app transactions in the  
13 App Store are not substitutes for game app transactions?

14 **A.** You'll have to tell me substitutes for whom. If we're  
15 talking about from the standpoint of developers and users, the  
16 answer is no.

17 **Q.** In your view, is a download transaction from the App Store  
18 of *Call of Duty: Black Ops - Zombies* a substitute for download  
19 transaction of the Graphing Calculator Plus app?

20 **A.** It is not for either the user or the developer.

21 **Q.** In your opinion, when *Fortnite* was in the App Store, were  
22 in-app transactions on *Fortnite* reasonably interchangeable  
23 substitutes for in-app transactions on non-game iOS apps?

24 **A.** Those transactions between developer and -- and users were  
25 not.

## EVANS - CROSS - SWANSON

1 Q. When *Fortnite* was removed from the App Store, were in-app  
2 purchases in non-game iOS apps better substitutes than  
3 *Fortnite* in-app transactions on game consoles or PCs?

4 A. No.

5 Q. In your opinion, are game transactions on the App Store  
6 not substitutes for digital game transactions on the  
7 PlayStation Store or on Steam?

8 A. If you could ask me that one more time, please.

9 Q. In your opinion, are game transactions on the App Store  
10 not substitutes for digital game transactions on the  
11 PlayStation Store or on Steam?

12 A. They are not significant substitutes in the way that we  
13 use those terms for market definition.

14 Q. So they're not in the same market, in your view?

15 A. That's correct.

16 Q. In your opinion, downloading *Star Wars: Knights of The*  
17 *Old Republic* for \$9.99 on Steam is not a substitute for  
18 downloading *Star Wars: Knights of the Old Republic* for \$9.99  
19 on your iPad?

20 A. It is -- it is the same answer, that when we talk about  
21 substitute in an antitrust context, we are talking about  
22 significant substitution and we're talking about in the  
23 context of market definition, so in that context, the answer  
24 is my opinion is -- is no.

25 Q. And in your opinion, buying V-Bucks through your iPhone

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1 browser is not a substitute for buying V-Bucks on your Windows  
2 laptop in the *Fortnite* app?

3 **A.** It's the same answer concerning meaningfulness and market  
4 definition, that's correct.

5 **Q.** So the answer is "no"?

6 **A.** That's correct.

7 **Q.** Dr. Evans, you had no data that you relied on that showed  
8 actual substitution arising from relative price changes  
9 between platforms; right?

10 **A.** I want to make sure I -- if you could ask me that one more  
11 time just to make sure I give you a precise answer to that.

12 **Q.** Sure. Can everyone hear me on --

13 **THE COURT:** We can hear you fine.

14 **MR. SWANSON:** Thank you. I do have trouble with that  
15 sometimes, especially with the mask.

16 **Q.** Dr. Evans, you had no data you relied on that showed  
17 actual substitution arising from relative price changes  
18 between platforms; correct?

19 **A.** That is correct.

20 **Q.** You didn't have any transactional data from any of the  
21 consoles; right?

22 **A.** That is correct.

23 **Q.** And Epic didn't seek that data, did Epic?

24 **A.** That I don't know.

25 **Q.** You didn't advise Epic --

**EVANS - CROSS - SWANSON**

**THE COURT:** You didn't ask for it, did you?

**THE WITNESS:** I did not.

**BY MR. SWANSON:**

**Q.** And you didn't have any transactional data for any Android App Store; correct?

**A.** That is also correct.

**Q.** And you didn't ask for that data, did you?

**A.** That I really am not sure of because that's -- that's a set of issues related to the -- to the Google case, but I don't -- I can't -- I can't state factually whether we did or not.

**Q.** But you can limit it to this case. That's what I'm asking you about.

**A.** For the purpose of this case, no.

**Q.** And you didn't have any transactional data for any PC or Mac App Store; correct?

**A.** That is also correct.

**Q.** And that includes Steam; right?

**A.** Yes.

**Q.** And you didn't ask for that data either; right?

**A.** That's correct.

**Q.** Now, you did have access to all of the Apple transactional data, including every price charged for iOS app transactions from the U.S. store from the inception of the App Store through September 2019; right?

**EVANS - CROSS - SWANSON**

1       **A.**   That's correct.

2       **Q.**   And while you used Apple's transactional data to calculate  
3       what you called "effective commission rates," you made no  
4       other use of it in your analysis; correct?

5       **A.**   That is correct.

6       **Q.**   What you used for your SNIP test instead of any switching  
7       data was Professor Rossi's survey; right?

8       **A.**   One more time, please, Mr. Swanson.

9       **Q.**   Sure. What you used instead of switching data of the sort  
10      we've been talking about was Professor Rossi's survey results;  
11      right?

12      **A.**   So I agree with the part of your statement that I used  
13      Professor Rossi's survey data to address consumer switching.  
14      The part I don't agree with is that I used that instead of  
15      something else. I used Professor Rossi's data.

16      **Q.**   All right. Fair enough.

17             Now, Professor Rossi's survey looked at in-app purchases  
18      and subscriptions but not downloads; correct?

19      **A.**   That's correct.

20      **Q.**   Now, the iOS app distribution market you defined included  
21      download transactions; right?

22      **A.**   That's correct.

23      **Q.**   That is the only thing you have told us definitively is in  
24      your iOS apps distribution market; right?

25      **A.**   That's correct.

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1 **Q.** And Professor Rossi did not survey downloads; right?

2 **A.** To answer that precisely, in the -- in the -- in the  
3 survey he conducted of consumers, he did not ask a question  
4 that was particular to app downloads, to paid app downloads.

5 **Q.** Well, he didn't ask about them, period; right?

6 **A.** He did not ask about paid downloads in his survey, period.

7 **Q.** And Professor Rossi did not examine digital game  
8 transactions specifically; right?

9 **A.** That's correct.

10 **Q.** Now, SNIP stands for "small but significant non-transitory  
11 increase in price"; right?

12 **A.** That's correct.

13 **Q.** And Professor Rossi's survey asked respondents about a  
14 price change during a 30-day period only; right?

15 **A.** That's not correct.

16 **Q.** What is your understanding that Professor Rossi -- what  
17 was the time frame that you understand Professor Rossi used?

18 **A.** He asked consumers to focus on the previous 30 days in  
19 order to focus them on the -- on how much they had purchased  
20 in order to provide a basis for a hypothetical price increase,  
21 and he then indicated that was a permanent price increase.

22 **Q.** Well, is that what question 16 of Professor Rossi's survey  
23 states? Does he use the term "permanent price increase"  
24 somewhere?

25 **A.** I'd have to go through the survey to go through the



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1 various questions that were asked to get responses. There  
2 were a series of questions that were asked to get at various  
3 different aspects of this.

4 **Q.** Well, Professor Rossi's question was, "Thinking about the  
5 same 30-day period, would you have made the same purchases of  
6 IAP subscriptions from the Apple App Store with the higher  
7 prices," do you think that would have been the wrong way to  
8 present the question?

9 **A.** No. I've reviewed -- I don't have all the questions in  
10 mind, but I've reviewed Professor Rossi's survey, and my -- my  
11 reading of it is that the questions are being phrased in a way  
12 where consumers are focused on the tangible effect of the  
13 price increase in the previous 30 days, but the questions are  
14 phrased in a way that it refers to a -- a permanent --  
15 permanent price increase.

16 **Q.** And --

17 **A.** But I'd have to go through the survey to -- to remind  
18 myself of the details of that.

19 **Q.** Well, you relied on it so it would be very important for  
20 you for the words "permanent price increase" to be in the  
21 survey; right?

22 **A.** No.

23 **Q.** It would not?

24 **A.** No. From the standpoint of -- of doing a good survey, a  
25 good survey expert phrases questions in a way that -- that

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1 communicates things to consumers. Whether -- whether the  
2 phrase "permanent price increase" is a matter of good survey  
3 design, that's really a question not for me but for a -- for a  
4 survey expert.

5 There are a lot of details that go into how you phrase  
6 things in surveys so that consumers don't get confused and so  
7 forth, so these -- the precise words, that's really not  
8 something for me to, as an economist -- to say. That's more  
9 of a survey design and survey expert question.

10 **THE COURT:** But the topic of permanence was important  
11 to you. I'll go back and look at the survey myself. So is  
12 the topic of permanence important?

13 **THE WITNESS:** Yes. So in terms of -- of interpreting  
14 the data from the survey, it's important to understand whether  
15 consumers thought of this as being a -- permanent is a long  
16 time, but a long-term price increase. So that issue actually  
17 is -- is important.

18 **THE COURT:** Proceed.

19 **BY MR. SWANSON:**

20 **Q.** And it's important because the SNIP test is designed to  
21 analyze a non-transitory price increase; right?

22 **A.** That's correct.

23 **Q.** That's what the "N" stands for; correct?

24 **A.** That's correct.

25 **Q.** And it's generally agreed among economists that consumers'

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1 responses to longer run price changes can be substantially  
2 different from their responses to shorter run price changes;  
3 right?

4 **A.** That's true.

5 **Q.** So a response to a 30-day price increase would likely be  
6 different than a response to a permanent price increase;  
7 correct?

8 **A.** Yes.

9 **Q.** Now, in her opening, Ms. Forrest said that  
10 Professor Rossi's survey shows inelastic demand. That's at  
11 page 36 of the transcript. That's not correct, is it?

12 **A.** It is -- it is not precisely correct. So an economist  
13 would not -- would not use exactly those -- those words.

14 **Q.** Well, economists consider the dividing point for elastic  
15 and inelastic demand to be minus one; right?

16 **A.** That is the -- that is the technical definition of elastic  
17 versus inelastic demand.

18 **Q.** And the point estimate from Dr. Rossi's survey of the  
19 elasticity of demand was minus 2.19; right?

20 **A.** That's correct.

21 **Q.** So that means a 5-percent increase in price would result  
22 in an 11-percent reduction in quantity demanded; right?

23 **A.** That's correct.

24 **Q.** That's elastic demand, isn't it?

25 **A.** So this -- this is where the technical detail and how

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1 economists, you know, talk about this differs a little bit.

2 Economists would refer to that as -- as relatively  
3 inelastic demand. It's not technically an elastic demand, but  
4 since the elasticity can go up to a -- up to infinity, a minus  
5 two, while it's not technically inelastic demand, is  
6 relatively inelastic demand. That's how economists would --  
7 that's how economists would talk about it.

8 **Q.** Are you seriously telling me, Dr. Evans, that you would  
9 teach an undergraduate in an economics course that an  
10 elasticity that results in a double drop in quantity demanded  
11 as a result of a 5 percent price increase is relatively  
12 inelastic?

13 **A.** If I were talking to them about the kinds of elasticities  
14 that economists ordinarily encounter in markets, sure, a minus  
15 two is a relatively inelastic demand compared to -- compared  
16 to other markets.

17 **Q.** Let's talk about the statistical competence interval.  
18 That was on Ms. Hora's slide.

19 Dr. Rossi's statistical competence interval includes an  
20 elasticity of minus 2.85. Do you recall that?

21 **A.** I -- I don't recall the -- the -- the particular bounds of  
22 the competence interval as I sit here now.

23 **Q.** Well, do you recall that the competence interval included  
24 an elasticity of almost minus three?

25 **A.** On one side, yes.

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1 Q. Okay. So a minus 2.85 elasticity means that a 5 percent  
2 increase in price would result in a 14 percent reduction in  
3 quantity demanded; right?

4 A. I -- I didn't hear in what you just said what you're  
5 assuming about the -- about the elasticity.

6 Q. A minus 2.85 elasticity would mean that a 5 percent  
7 increase in price would result in a 14 percent reduction in  
8 quantity demanded; correct?

9 A. That math sounds right.

10 Q. Is that relatively inelastic to you?

11 A. It's -- so -- yes. So the elastic that one often sees in  
12 markets, you know, generally are 4, 6, 8, 10 as -- as -- as a  
13 practical matter. So it's -- yeah. It's certainly higher,  
14 but it's in the range.

15 Q. So your testimony is that generally when you look at any  
16 product across the economy, you'd expect that a 5 percent  
17 increase in price would result in a 20, 30, or 50 percent  
18 reduction in quantity demanded or output?

19 A. No.

20 Q. Well, wouldn't that be an elasticity of 4, 6, or 8 --  
21 sorry, 4, 6 or 10?

22 A. For individual -- for individual brands, that's not an  
23 uncommon elasticity.

24 Q. Now, Professor Rossi actually didn't manage to convey that  
25 the price change was permanent instead of a 30-day price

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1 change. The elasticity that he would measure would likely  
2 have been higher than minus 2.19; correct?

3 **A.** That's correct.

4 **Q.** Now, Professor Rossi's survey supplied you with data that  
5 didn't match your global geographic market; right?

6 **A.** That's correct.

7 **Q.** His survey was limited to U.S. consumers; correct?

8 **A.** Yes.

9 **Q.** You understand that Professor Rossi himself indicated that  
10 it might be difficult to extend his results to other countries  
11 since the survey was not designed for that purpose; right?

12 **A.** To -- well, to do the survey in other countries, the  
13 survey would need to be translated and customized a bit. I  
14 mean, it would be possible to do that survey in other  
15 countries.

16 **Q.** But Dr. Rossi hadn't done that; right?

17 **A.** That's correct.

18 **Q.** Now, in addition to the iOS app distribution and  
19 smartphone OS markets we discussed, you also define a market  
20 for solutions for accepting and processing payments for  
21 digital content purchased within an iOS app. That's the full  
22 definition of the market; right?

23 **A.** That's correct.

24 **Q.** Do you agree that in two-sided transaction markets, only  
25 one market should be defined?

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1       **A.**   Just say that one more time, please.

2       **Q.**   Do you agree that in two-sided transaction markets, only  
3       one market should be defined?

4       **A.**   Well, by definition, if it's a two-sided transaction  
5       market, it's a two-sided transaction market and only one  
6       market should be defined for that.

7       **Q.**   If a transaction platform didn't charge anything for  
8       transactions on its platform, in your view, would there be any  
9       tying issue?

10      **A.**   I don't -- I don't think I have enough -- enough details  
11      to really understand what you're asking.

12      **Q.**   In your view, when a transaction collects payment for a  
13      transaction, is it imposing a tying arrangement?

14      **A.**   Again, I don't have enough -- I could imagine lots of  
15      different -- lots of different details of what you're talking  
16      about, so if it's possible, if you could make it more precise  
17      for me.

18      **Q.**   Okay. Let's talk about ridesharing platforms. You  
19      mentioned Uber and Lyft numerous times in your reports, in  
20      your written direct; correct?

21      **A.**   That's correct.

22      **Q.**   Uber and Lyft are platforms for drivers and riders to  
23      enter into transactions; correct?

24      **A.**   Yes.

25      **Q.**   And you agree that Uber and Lyft are two-sided transaction

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1 platforms?

2 **A.** I do.

3 **Q.** Uber and Lyft use their own payment solutions, to use your  
4 term; correct?

5 **A.** That's correct.

6 **Q.** Uber and Lyft charge drivers commissions; correct?

7 **A.** That's correct.

8 **Q.** And drivers can't make the choice to avoid the commission  
9 by taking cash from the rider or using a mobile payment device  
10 like a credit card reader; correct?

11 **A.** That's correct.

12 **Q.** So in your terminology, Uber and Lyft don't give drivers  
13 the choice to select their own payment solutions, do they?

14 **A.** No. In that case, it's like American Express providing a  
15 service to those two sides and it's using its payment solution  
16 in order to collect money for the transaction between the --  
17 between the two parties.

18 **Q.** So in your terminology, Uber and Lyft don't give drivers  
19 the choice to select their own payment solutions?

20 **A.** They do not.

21 **Q.** And you view Lyft's and Uber's payment solutions to be  
22 separate products?

23 **A.** I do not.

24 **Q.** Dr. Evans, in your written direct -- well, paragraph 238.  
25 If you could turn to that that will help me frame my question.



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1 **A.** This is my...

2 **MR. SWANSON:** I apologize for my awful posture. I'm  
3 thinking of my mother now.

4 **THE COURT:** No. I appreciate --

5 **MR. SWANSON:** The platform is too low for me.

6 **THE COURT:** Well, you're too high.

7 **MR. SWANSON:** I'm too high, yes.

8 **THE COURT:** 238. Are you there, sir?

9 **BY MR. SWANSON:**

10 **Q.** So are you there, Dr. Evans?

11 **A.** Yes.

12 **Q.** You have listed here 11 popular physical apps. Do you see  
13 the list at the end of 238?

14 **THE COURT:** The fourth line down.

15 **THE WITNESS:** I must be at the wrong place. I'm  
16 looking at my --

17 **BY MR. SWANSON:**

18 **Q.** Page 63.

19 **A.** I apologize. I must be looking at the wrong place.

20 **THE COURT:** Do you have your direct in front of you?

21 **THE WITNESS:** I have my written direct.

22 **THE COURT:** Okay. Paragraph 238, which is on page  
23 63.

24 Do you want to help him, Mr. Bornstein?

25 **MR. BORNSTEIN:** Your Honor --

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1                   **THE COURT:** You can approach.

2                   **THE WITNESS:** So I have -- okay. So I think the

3 paragraph and page numbers must be off.

4                   **BY MR. SWANSON:**

5                   **Q.** Hopefully you've got the right version now.

6                   **A.** Now I do.

7                   **Q.** So page 63?

8                   **A.** Yes. I have it now.

9                   **Q.** So do you see the list there: Grubhub, Wish, StubHub,  
10 Uber, DoorDash, Lyft, Instacart, Postmates, Amazon Shopping,  
11 Wal-Mart, and eBay? Do you see that list?

12                  **A.** I do.

13                  **Q.** Those are all two-sided transaction platforms; right?

14                  **A.** Yes, they are.

15                  **Q.** You say they all use their own payment solutions; right?

16                  **A.** They do.

17                  **Q.** Isn't it true that every one of these platforms mandates  
18 the use of their own payment solution?

19                  **A.** They do.

20                  **Q.** And do you believe in each instance these platforms are  
21 tying a separate payment solution product to the use of their  
22 platform?

23                  **A.** Not at all.

24                  **Q.** And you are aware that multiple online game platforms use  
25 their own payment solutions to collect their commissions on

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1 in-app purchases; right?

2 **A.** I am.

3 **Q.** And even the Epic Games Store, when it opened, required  
4 use of its own payment solution; correct?

5 **A.** That's correct.

6 **Q.** Epic's policy changed only in December of 2019; right?

7 **A.** That's correct.

8 **Q.** And since that time, at least as of your deposition, you  
9 were aware of only one or two developers that had chosen to  
10 use a different payment solution; right?

11 **A.** That's true.

12 **Q.** Do you agree, Dr. Evans, that the App Store does not tie  
13 anything when it collects a payment for an initial download?

14 **A.** I do.

15 **Q.** So IAP is a separate product in your view, but the  
16 software and systems Apple uses on initial downloads are not  
17 separate products?

18 **A.** I didn't follow that. Try -- would you say it one more  
19 time?

20 **Q.** Okay. So IAP is a separate product in your view, but the  
21 software and systems Apple uses on initial downloads are not  
22 separate products?

23 **A.** I -- I think that mixes -- it mixes some apples and  
24 oranges there.

25 **Q.** Well, are they separate products or not?

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1     **A.**   The provision of payment solutions for in-app -- in-app  
2     transactions between the developer and the user as in between  
3     Tinder as the developer, for example, and a user of Tinder,  
4     those are -- those are -- those are different than paid  
5     downloads.

6           The payment solution that is being provided for the  
7     purposes of that transaction, which is after distribution,  
8     that is a separate product from the provision of app  
9     distribution services where the App Store as the -- as the app  
10    distributor is providing a distribution service for the user  
11    and developer. Those -- those are just very different. And  
12    the -- the payment solution that Apple as the -- as the -- as  
13    the App Store as a distributor is using for its transactions,  
14    that payment solution is different than the -- is -- is -- is  
15    standing in a different way when Apple is using it as the app  
16    distributor than when Apple is telling developers that they  
17    need to use that payment solution for transactions with their  
18    own customers. Those are just different things.

19    **Q.**   Well, let me just see if I can get an answer to the  
20    question.

21           IAP is a separate product in your view; right?

22    **A.**   To be precise on that, the -- the Apple payment solution,  
23    which is what the IAP mechanism requires the developer to use,  
24    is the -- is the separate product. IAP itself is largely an  
25    API that takes the developer to the Apple payment solution.

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1 **Q.** Okay. And the software and systems or payment solution  
2 that Apple uses on initial downloads is not a separate  
3 product?

4 **A.** It is not a separate product to the extent that -- that  
5 Apple is using its internal payment infrastructure to -- to  
6 process transactions that involve distribution on its App  
7 Store. It's no different -- it's no different than Wal-Mart  
8 having its own payment method for transactions within a --  
9 within a Wal-Mart store. So that is -- that is at that point  
10 not a product. It is -- it is a -- it is an input that the  
11 store has developed for the purpose of -- of transactions.

12 If Wal-Mart then takes its payment solution and markets it  
13 elsewhere, then that's a -- that's a separate product, but if  
14 it is just using its internal payment solution for  
15 transactions within its own store, that's not a product.  
16 That's just -- that's just part of the -- part of the Wal-Mart  
17 business in that example.

18 **Q.** Have you ever gone to the App Store?

19 **A.** I have.

20 **Q.** Have you ever looked at a variety of apps available for  
21 download that have in-app purchases?

22 **A.** Well, when I personally go to the App Store, I go there  
23 because there's a particular app that I want to get, and, you  
24 know, occasionally I'll go there because there's a category of  
25 apps or some particular thing that I want to establish, and

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1 I'll go there for that purpose. I don't go to the App Store  
2 and troll around for apps that have in-app purchases, just  
3 speaking of me as a consumer.

4 **Q.** Are you aware that in the App Store there are apps where  
5 before you download, you can actually do an in-app purchase?

6 **A.** I was not.

7 **Q.** Now, it's your position that Apple has a one hundred  
8 percent market share in your payment solutions market; right?

9 **A.** That's correct.

10 **Q.** The payment solutions market you define as another  
11 single-brand market; correct?

12 **A.** It is.

13 **Q.** You don't recognize any actual competitors to Apple in  
14 your payment solutions market; right?

15 **A.** In the actual world, that's correct.

16 **Q.** You don't consider the suppliers of payment solutions for  
17 in-app purchases of physical goods or services in the App  
18 Store to be competitors in your relevant market?

19 **A.** They are not competitors in the relevant market as  
20 defined, that's right.

21 **Q.** You think that payment solutions for physical products are  
22 separate products sold in a different market; right?

23 **A.** No. And in -- in answering this question, it's important  
24 to distinguish what the world looks like between the actual  
25 world and the -- and the but-for world.

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1           So in the actual world, a digital content -- a digital app  
2       developer is not able to go get a payment solution that, let's  
3       say, Uber is using. It can't go to those payment processors,  
4       it can't do any of the stuff that Uber can do.

5           Now, in the but-for world where that restriction is  
6       relaxed, then it is possible for the developer to create their  
7       own payment solution and essentially do all the things that a  
8       physical app developer could do. So in the but-for world,  
9       then -- then there are lots of payment solutions that are --  
10      that are available.

11      **Q.**   Didn't you say in your written direct testimony that the  
12      relevant market for evaluating exclusionary conduct is the one  
13      that would exist in the absence of that conduct?

14      **A.**   It is. That's correct.

15      **Q.**   So in the absence of the alleged tie, you certainly agree  
16      that there are many competitors for payment solutions to  
17      Apple?

18      **A.**   I agree with that statement, that in the absence of the  
19      tie, there are many -- there are many payment processes  
20      available and that developers would have the ability and would  
21      develop their own payment solutions.

22      **Q.**   But even though you say that the relevant market should be  
23      the one that would exist in the absence of the conduct, in  
24      this case, you define the relevant market to include only  
25      Apple; right?

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1     **A.**    Yes, with the qualification that I define the relevant  
2     market as the -- as the targeted group of developers that  
3     Apple requires to use its in-app payment solution.

4     **Q.**    You don't consider the suppliers of payment solutions and  
5     websites like Yoga Buddhis to be competitors in your relevant  
6     market, do you?

7     **A.**    That is correct.

8     **Q.**    In your written direct, you state -- and Mr. Bornstein  
9     took you through this earlier -- that the alleged tie  
10    foreclosed competition for payment solutions for thousands of  
11    developers for more than a certain amount of money, which that  
12    amount is sealed. Do you recall that?

13    **A.**    I don't think Mr. Bornstein said thousands, but I do  
14    recall that.

15    **Q.**    Okay. That's what your direct says; correct?

16    **A.**    Yes. My -- my written direct says -- I think I can say  
17    this -- it's in the hundreds -- hundreds of thousands.

18    **Q.**    Now, foreclosed competition for payment solutions requires  
19    foreclosed competitors; correct?

20    **A.**    That's correct.

21    **Q.**    But you don't regard payment processors as competitors to  
22    Apple, do you?

23    **A.**    The -- the -- I don't -- so I -- I don't consider -- I do  
24    consider payment processors as part of the overall payment  
25    solution for developers to be part of the competition for



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1 Apple's payment solution.

2 **Q.** That was not my question.

3 You don't regard payment processors as competitors to

4 Apple, do you?

5 **A.** The difficulty I'm having with your question, Mr. Swanson,

6 is Apple is a -- is Apple is a very big company that is lots

7 of things, so I was hoping to maybe narrow the question down

8 to things that are -- that are particular to the payment

9 solution.

10 **Q.** Well, you're not -- you're not asserting in your relevant

11 market to be defined here that Apple is a payment processor,

12 are you?

13 **A.** That is not entirely correct. And I can explain why?

14 **Q.** Go ahead.

15 **A.** So let's suppose hypothetically Apple decided to make its

16 payment solution available on a voluntary basis --

17 **Q.** I'm not talking about hypotheticals. I'm asking you if in

18 your relevant market, Apple is a competing payment processor?

19 **A.** Largely no.

20 **Q.** And it's not a trick question. I'm trying to understand,

21 since you say that this alleged tie foreclosed competition --

22 I'm trying to understand who the competitors are. So they're

23 not payment processors?

24 **A.** They are -- they are payment solutions created by

25 developers in concert with payment processors where, in some

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1 cases, those developers could turn to payment processors like  
2 Apple which is a particular kind of payment processor that has  
3 cards on file, and in a world where Apple made the payment  
4 solution available, Apple would have a -- a payment solution  
5 that is actually quite similar to -- quite similar to PayPal  
6 so it would be a -- a competitor of PayPal as a payment  
7 processor. It would not be a competitor to, let's say,  
8 Stripe, but it would be a competitor to PayPal.

9 **Q.** My question was directed at understanding who the  
10 competitors are in your relevant market. Are the developers  
11 the potential competitors?

12 **A.** They are. It is -- it is the developers who have the  
13 ability to create their own payment solutions, which they can  
14 do as an alternative and as a substitute for securing a  
15 payment solution from a -- from a third party. And they do  
16 that in concert with payment processors.

17 **Q.** In concert means they use payment processing as one of the  
18 inputs into their payment solution?

19 **A.** That's correct.

20 **Q.** You're not claiming that Apple is trying to monopolize the  
21 payment processing industry, are you?

22 **A.** I am not.

23 **Q.** It's true, isn't it, that Apple's digital App Store  
24 transactions account for a miniscule percentage of the online  
25 payment processing industry?

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1       **A.**    That's true.

2       **Q.**    And don't you agree that there is a vibrant third-party  
3       payment processing industry?

4       **A.**    Yes. I agree with that.

5       **Q.**    On the topic of tying, Dr. Evans, you agree as an  
6       antitrust economist, don't you, that tying claims are better  
7       analyzed under the rule of reason than under the per se rule?

8       **A.**    I do.

9       **Q.**    And you've expressed that opinion many times, including to  
10      the DOJ and the FTC; correct?

11      **A.**    Yes, in even -- even stronger terms than what you just  
12      read.

13      **Q.**    It's a heartfelt conviction; right?

14      **A.**    It is.

15      **Q.**    Now, you agree that from Apple's standpoint, having  
16      developers use IAP to collect its commission is efficient?

17      **A.**    I do.

18      **Q.**    And you haven't analyzed the additional costs that Apple  
19      or, for that matter, developers and consumers would bear from  
20      collecting commissions from developers in more than 170  
21      countries around the world, have you?

22      **A.**    I have not considered that or that but-for world.

23      **Q.**    Let's --

24                   **THE COURT:**   Has anybody in this case, to your  
25      knowledge?

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1                   **THE WITNESS:** No. I don't think anyone in this case  
2 has really analyzed that -- that question.

3                   **THE COURT:** Thank you.

4                   And you have five minutes before the break.

5                   **MR. SWANSON:** All right, Your Honor. Thank you.

6                   **Q.** Let's then change subjects. Let's see if we can get five  
7 minutes into your SNIP analyses.

8                   In your written direct examination, Dr. Evans, you  
9 testified that special issues arise in the context of applying  
10 SNIP tests to two-sided platform businesses; right?

11                  **A.** That's correct.

12                  **Q.** Now, you've written in the past that you are "dubious that  
13 the light generated by market definition analysis in markets  
14 involving multisided platforms is worth the candle"; right?

15                  **A.** That -- that sentence does appear in a working paper I  
16 did.

17                  **Q.** Okay. And do you also recall that you have written that  
18 "even if it is technically possible to extend the hypothetical  
19 monopoly test to two-sided platforms, the challenges of  
20 implementing the SNIP test empirically in two-sided markets  
21 are likely to be overwhelming in practice"?

22                  **A.** I have, with the -- with the phrase "empirically" really  
23 referring in that context to -- to sophisticated econometric  
24 modeling efforts.

25                  **Q.** And you have done no sophisticated econometric modeling in

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1 this case; right?

2 **A.** That's correct. Well, so --

3 **Q.** On this issue?

4 **A.** On -- on this particular -- on this particular issue,  
5 that's -- that's correct.

6 **Q.** And you agree that you think there's no consensus among  
7 antitrust economists on how to formulate and apply the SNIP  
8 questions to questions of the market definition in two-sided  
9 markets; right?

10 **A.** Well, at the time I wrote that, I -- I think that's right.  
11 I think now there's been a lot of learning since then, and I  
12 wouldn't say that there is a consensus, but I think there is a  
13 consensus that it's obviously very fact specific and depends  
14 upon the particular matter.

15 **Q.** Well, didn't you say that in your deposition, that "there  
16 is no consensus among antitrust economists on how to formulate  
17 and apply the SNIP test to questions of market definition in  
18 two-sided markets"?

19 **MR. BORNSTEIN:** Objection, Your Honor. Improper  
20 impeachment. He just said that.

21 **THE COURT:** You can answer the question, that is, did  
22 you say it or not just a couple months ago?

23 **THE WITNESS:** Your question is did I say that in my  
24 deposition?  
25

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1 **BY MR. SWANSON:**

2 **Q.** Yes. Did you say, "I don't think there is a consensus  
3 among antitrust economists on how to do it"?

4 **A.** Yeah. I very well -- sounds like I said it.

5 **Q.** So your SNIP analysis, based on the results of Dr. Rossi's  
6 survey, as you interpret them, says that Apple could have  
7 increased its effective commission in 2019 to 35.9 percent  
8 without sacrificing any profit; right?

9 **A.** That -- that's correct.

10 **Q.** And to have an effective commission of 35.9 percent, Apple  
11 would have to have a list commission above that; right?

12 **A.** That's correct.

13 **Q.** You calculate that Apple would have raised almost a  
14 billion dollars in additional profit in 2019 alone if it had  
15 increased the effective commission rate to 35.9 percent;  
16 right?

17 **A.** Yes. I think the actual estimate of the increase in  
18 profits was about 800 million.

19 **Q.** Okay. And you believe that it's probably true that Apple  
20 could have raised its effective commission even higher than  
21 35.9 percent without reducing its profits?

22 **A.** Yes, I do.

23 **Q.** And on your view, you can't say that Apple would be  
24 reducing its profits if it raised the effective commission  
25 rate to 50 percent, can you?

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1     **A.**    I -- I don't have any -- I don't have any basis for  
2     answering that.

3             **THE COURT:**   Okay. Good time to break?

4             **MR. SWANSON:**   All right.

5             **THE COURT:**   All right. We stand in recess for 20  
6     minutes. We will be back on the record at 10:35.

7             Make sure you are back on the stand at that time. Thank  
8     you.

9                     (Recess taken at 10:16 a.m.)

10                    (Proceedings resumed at 10:36 a.m.)

11            **THE COURT:**   All right. We are back on the record.  
12     The record will reflect that the parties are present, as is  
13     the witness.

14            You may continue.

15            **MR. SWANSON:**   Thank you, Your Honor.

16     **BY MR. SWANSON:**

17     **Q.**    Dr. Evans, you opine that Apple has a 100 percent market  
18     share of your iOS app distribution market, correct?

19     **A.**    That is correct.

20     **Q.**    Apple's market share has always been 100 percent in that  
21     market as you define it, right?

22     **A.**    That's correct.

23     **Q.**    When Apple had 100 percent market share in 2008, you agree  
24     that Apple did not have monopoly power in that market, right?

25     **A.**    I do agree.

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1 Q. In your opinion, Apple did not obtain monopoly power in  
2 the iOS app distribution market that you've defined until  
3 around 2010; is that correct?

4 A. That is correct.

5 Q. Now, yesterday when you were testifying about your  
6 smartphone OS market, you indicated that Apple did not have  
7 significant market power until 2010, '11, or '12.

8 Did I hear that right?

9 A. I think I did say that.

10 Q. Okay. Is that the same opinion or the same level of  
11 precision that you've got around your estimate of the time  
12 when Apple obtained monopoly power in your iOS app  
13 distribution market?

14 A. No. If I had to restate that, I would time both of those,  
15 as I did in my written Direct testimony, to 2000 and -- to  
16 2010.

17 MR. SWANSON: Can we put up Slide 18 from your  
18 presentation yesterday. That was the duopoly market slide.

19 BY MR. SWANSON:

20 Q. Now, in 2010, on your estimation, Apple was overtaken by  
21 Android in your smartphone OS market, right?

22 A. No, that isn't -- that isn't correct. This slide here is  
23 showing -- is showing handset sales, primarily for the purpose  
24 of showing that the market is converging to everyone using  
25 iOS and Android devices.



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1           The way I am analyzing market power for smartphone  
2           operating systems isn't based on handset sales, although this  
3           is illustrative and relevant data; it's based on the extent to  
4           which there is market power for the app development platform  
5           serving app users and app developers. So that analysis is not  
6           coincident with the handset -- handset sales.

7           **Q.** Well, it's your opinion, I gather, that Apple became a  
8           monopolist just at the point in time when Android devices  
9           substantially overtook iOS devices in sales.

10          Isn't that demonstrated by your slide?

11          **A.** So as a -- in terms of the facts that you have just  
12          stated, it is -- it is correct -- the facts you've just stated  
13          are correct in terms of this slide.

14          **Q.** Okay. Thank you.

15                 **MR. SWANSON:** You can put that down.

16          **BY MR. SWANSON:**

17          **Q.** You don't calculate a market share for the digital game  
18          transactions market defined by Apple's experts, do you?

19          **A.** I do not.

20          **Q.** And you take the position that one-sided businesses can  
21          compete in the same market with two-sided platforms; is that  
22          correct?

23          **A.** As a -- you're stating that as a general proposition. And  
24          as a general proposition, I do agree with it.

25          **Q.** Yes, I was asking the general question. Thank you.

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1 To make it specific, for example, you consider direct  
2 downloading, sometimes called sideloading, to be one-sided  
3 competition to two-sided PC platforms like Steam and Epic  
4 Games Store, right?

5 **A.** That is correct.

6 **Q.** All right. One point, Dr. Evans. You didn't mention  
7 essential facilities at all during your Direct or in your  
8 written testimony, correct?

9 **A.** That is correct.

10 **Q.** Am I correct that you're not expressing any opinion on  
11 anything termed an essential facility or anything related to  
12 an essential facility claim in this case?

13 **A.** That is correct.

14 **Q.** Now, you concede that the contractual and technical design  
15 practices that are challenged by Epic were benign when first  
16 adopted by Apple, correct?

17 **A.** They were benign in a -- in an antitrust sense.

18 **Q.** In a competitive sense, correct?

19 **A.** That's correct.

20 **Q.** You're not offering any opinion that the technical design  
21 of the original iPhone that was released in 2007 was  
22 anticompetitive, are you?

23 **A.** I am not.

24 **Q.** And you're not offering any opinion that any  
25 anticompetitive effects flowed from the original technical

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1 design of the first iPhone released in 2007, right?

2 **A.** That is correct.

3 **Q.** And you don't claim that the technical features of the  
4 iPhone 3G were anything other than competitively benign when  
5 introduced in 2008, correct?

6 **A.** That's correct.

7 **Q.** Now, you understand that the challenged contractual  
8 provisions in this case were present in the Developer Program  
9 License Agreement, the DPLA, in or around March of 2008,  
10 right?

11 **A.** I do.

12 **Q.** So the restrictions related to app distribution challenged  
13 by Epic in this case date back to the original set of  
14 contracts that were put in place in 2008, right?

15 **A.** That is right.

16 **Q.** And to the best of your knowledge, there have been no  
17 subsequent changes to the language of the Developer Program  
18 License Agreement that add provisions that anticompetitively  
19 restrain app distribution.

20 **A.** I believe that's correct.

21 **Q.** And you would agree that Apple was not a monopolist in  
22 2009 when it applied the 30 percent commission rate to in-app  
23 purchases, correct?

24 **A.** That is correct.

25 **Q.** In your opinion, Apple did not possess monopoly or

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1 substantial market power in your two-sided iOS app  
2 distribution market, again, until around 2010.

3 That's your current view, right?

4 **A.** That's correct.

5 **Q.** Okay.

6 **THE COURT:** Just so I am clear, when you say 2010,  
7 are we talking January, June, or December?

8 **THE WITNESS:** I can't say that I -- sitting here  
9 today, I would give it a particular month. When I say 2010, I  
10 guess, in my mind, I'm thinking mid 2010. I'm thinking about  
11 the year; I'm not really thinking about January versus  
12 December.

13 **THE COURT:** Okay.

14 **BY MR. SWANSON:**

15 **Q.** And you are thinking about the year as still being within  
16 a range of years, or you're definitively narrowing it down to  
17 2010?

18 **A.** I'm narrowing it down to 2010.

19 **Q.** So you're taking back your testimony yesterday about 2011,  
20 2012?

21 **A.** If you will, yes. I'm focusing on 2010, as I have in my  
22 written Direct, that's correct.

23 **Q.** On your written Direct, you say not before 2010, right?

24 **A.** That's correct.

25 **Q.** So now you are saying it's 2010.

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1       **A.** That's correct.

2       **Q.** Okay. I would like to put another exhibit before you. I  
3 think this requires another binder, which we will hand around.

4               **MR. SWANSON:** Your Honor, may I approach the witness?

5               **THE COURT:** Are we done with Binder 1?

6               **MR. SWANSON:** I think we will come back to it.

7               **THE COURT:** Okay.

8               **MR. SWANSON:** Not intensively, but....

9               So I am -- well, the document that I would like Dr. Evans  
10 to look at is Tab 8 in the binder, and I am told we should  
11 give it exhibit number DX5551.

12               (Defendant's Exhibit 5551 received in evidence)

13       **BY MR. SWANSON:**

14       **Q.** Do you have that in front of you, Dr. Evans?

15       **A.** I do.

16       **Q.** Do you recognize DX5551?

17       **A.** I do indeed.

18       **Q.** This is an amicus brief that you and Professor Schmalensee  
19 submitted to the Supreme Court in the Ohio versus American  
20 Express matter, correct?

21       **A.** That is correct.

22       **Q.** And you submitted this brief in your capacity as an  
23 economist, correct?

24       **A.** Yes, I did.

25       **Q.** Now, in the American Express case, you are familiar with

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1 the facts of that case, right?

2 **A.** I am.

3 **Q.** Okay. You recall that the evidence in that case was that  
4 the output of credit card transactions grew by 30 percent from  
5 2008 to 2013.

6 Does that sound fair?

7 **A.** Yep. Yes, it does.

8 **Q.** Now, turning to page 6 of your amicus brief, I want to  
9 focus you --

10 **A.** If you could just give me a second, Mr. Swanson.

11 **Q.** Yes, that's all right. I'm dealing with the same thing,  
12 so take your time.

13 **THE COURT:** Tab 8, page 6.

14 **MR. SWANSON:** Page 6.

15 **THE WITNESS:** Yes. I'm just dealing with -- some  
16 part of the beginning fell out because the binder wasn't  
17 sealed.

18 **MR. SWANSON:** It's the page paginated --

19 **THE WITNESS:** Thank you. I got it.

20 **BY MR. SWANSON:**

21 **Q.** So in the -- I wanted to focus you on a statement at the  
22 end of the first full paragraph. You state there that:

23 "Conduct that increases the overall output of a  
24 service should be commended, not condemned, as that  
25 is a central virtue of competition."

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1 Do you see that?

2 **A.** So I just want to make sure I'm in the right place. I see  
3 you've highlighted Footnote 11. Is that where you want me to  
4 look?

5 **Q.** No. I'm talking -- there is a page number at the top of  
6 the page that says 6.

7 **A.** Oh, 6. I'm sorry.

8 **Q.** If you've got highlighting, I apologize. You can ignore  
9 that. But page 6, the first full paragraph, starts, "To  
10 determine whether...."

11 Do you see that?

12 **A.** I do.

13 **Q.** And then the last sentence is what I'm focusing on:

14 "Conduct that increases the overall output of a  
15 service should be commended, not condemned, as that  
16 is a central virtue of competition."

17 Do you see that?

18 **A.** I do see that.

19 **Q.** And do you still subscribe to that view today?

20 **A.** Absolutely.

21 **Q.** Okay. Now, in this amicus brief, writing as an economist,  
22 you agreed with the Second Circuit's conclusion that the  
23 plaintiff had failed to establish anticompetitive effects,  
24 right?

25 **A.** That is correct.

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1 Q. And the reason that you deemed most important as an  
2 economist was that there was no evidence that the provisions  
3 in question resulted in an overall decrease in the output of  
4 transaction services, correct?

5 A. That is correct.

6 Q. Right. That's at page 8, Footnote 11, right? That might  
7 have been where you were before.

8 A. That is correct.

9 Q. Okay. And in the conclusion of your amicus brief at page  
10 28 -- that is the second page of the conclusion -- you stated  
11 that the Second Circuit's decision in favor of American  
12 Express should be affirmed, particularly given the lack of  
13 evidence that the challenged conduct reduced the output of  
14 transaction services.

15 Do you see that?

16 A. I do.

17 Q. And that was your opinion?

18 A. Yes, it was.

19 Q. Okay. Now, in this case, you agree, don't you, that  
20 output was growing before 2010 in the relevant market or  
21 markets that you define when you say that Apple obtained  
22 monopoly power?

23 A. Your question is -- I am sorry, your question again is  
24 what?

25 Q. Let me try again.



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1 In this case, you agree, don't you, that output was  
2 growing before 2010, which is when you say that Apple obtained  
3 monopoly power in your iOS app distribution market.

4 **A.** I agree that the -- I agree that the output in the app  
5 distribution market, certainly along a number of metrics, has  
6 grown enormously from 2008 to the present.

7 **Q.** So you agree that output has grown since the time you say  
8 that Apple obtained monopoly power, correct?

9 **A.** We're not using the term "output" very precisely here, but  
10 I think, you know, we can all agree that on a number of  
11 metrics, output is increased.

12 **Q.** And you would agree, and indeed you have written before,  
13 have you not, that the output of the App Store has grown  
14 explosively by any reasonable measure?

15 **A.** It sounds like something I would have written, and it is  
16 certainly a statement that I agree with.

17 **Q.** Now, in the -- well, has output grown more than  
18 30 percent?

19 **THE COURT:** Over what time period?

20 **MR. SWANSON:** Good question. Since the opening of  
21 the App Store in 2008 to the present.

22 **THE WITNESS:** Certainly.

23 **BY MR. SWANSON:**

24 **Q.** Do you know --

25 **A.** If I could put this down?

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1 Q. Yes, you -- I'm sorry. Yes, you can put it down.

2 Has output grown by more than 30 percent since 2010, when  
3 Apple, in your view, obtained monopoly power in the iOS app  
4 distribution market?

5 A. I don't know for a fact what the numerical increase has  
6 been, but I'm sure it has been more than 30 percent.

7 Q. In the context of platform economics, critical mass is the  
8 inflection point where rapid growth on a platform kicks in,  
9 right?

10 A. Yes, it is.

11 Q. And you're going to have to help me on this, because you  
12 gave a definition in your deposition that involved a little  
13 bit of hand movement.

14 But you indicated that critical mass is the inflection  
15 point where you kind of go along like this (indicating) and  
16 then something happens and, whoosh, you go like that  
17 (indicating).

18 Do you recall that?

19 A. I recall that and I recall the hand motions, which you  
20 have accurately mimicked.

21 Q. Thank you.

22 THE COURT: And the record should reflect that you  
23 went from low to high.

24 MR. SWANSON: I think it might have been a hockey  
25 stick.

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1                   **THE COURT:** All right. Like a hockey stick.

2                   **BY MR. SWANSON:**

3                   **Q.** Now, your take, Dr. Evans, is that the App Store obtained  
4 critical mass sometime between 2009 and 2010, right?

5                   **A.** That sounds like the right -- that sounds like the right  
6 time period.

7                   **Q.** And that is before Apple obtained monopoly power, in your  
8 view, in 2010, correct?

9                   **A.** That is correct.

10                  **Q.** Now, you didn't study the trend in growth when Apple  
11 obtained monopoly power, in your opinion, correct?

12                  **A.** I didn't understand your question.

13                  **Q.** You did not study the trend or any change in trend in  
14 growth when, in your opinion, in 2010, Apple obtained monopoly  
15 power?

16                  **A.** I did not.

17                  **Q.** Now, you'll agree that in 2010, in the market that you've  
18 defined, output didn't contract, right?

19                  **A.** That's correct.

20                  **Q.** And you haven't made any claim in your report or your  
21 deposition or your testimony here that output decelerated at  
22 that time in 2010, have you?

23                  **A.** That's correct.

24                  **Q.** You haven't identified any hiccup in the output data at  
25 the time that you say the App Store became a monopoly, right?

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1       **A.** That's true.

2       **Q.** Now, you testified earlier yesterday that Apple at some  
3 point provided poor quality distribution services.

4           Do you recall that?

5       **A.** Yes.

6       **Q.** You would agree, would you not, that Apple earns more in  
7 commission fee revenue if it provides an increase in quality  
8 that allows developers to sell more to users.

9       **A.** In principle, that's right.

10       **Q.** Okay. And you said it in your second preliminary  
11 injunction declaration, right?

12       **A.** Remind me what I said in my preliminary injunction.

13       **Q.** That Apple earns more in fee revenue if it provides an  
14 increase in quality that allows developers to sell more to  
15 users.

16           Do you recall that?

17       **A.** I don't, actually, but....

18       **Q.** Would you like to refresh your recollection on that?

19       **A.** No, I will take your word for it.

20       **Q.** Okay.

21       **A.** If you say it is there, I'm sure it is there.

22       **Q.** It's there.

23           Now, the reverse is true too, right, Apple earns less in  
24 fee revenue if it provides a decrease in quality that allows  
25 developers to sell less to users? That's just logic, right?

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1     **A.** Again, in principle, as a theoretical matter, that's true,  
2     uh-huh.

3     **Q.** It sounds very practical, as well as theoretical, doesn't  
4     it?

5     **A.** I don't think it sounds practical, because I've had the  
6     opportunity to actually examine the App Store and a lot of  
7     evidence concerning the performance of the App Store in  
8     conjunction with the App Store financials. So I have a view  
9     on what has, in fact, happened.

10    **Q.** Well, if you conclude the App Store's quality is  
11    decreasing, isn't it true that revenues earned by developers  
12    would be decreasing too?

13    **A.** No. I think the way to look at it is whether, given  
14    Apple's monopoly position, it -- it needs to provide as good  
15    services to developers as it would if it was facing -- facing  
16    more competition.

17           It is just the case that -- that monopolists, when they  
18    don't -- don't face competition, can get away with providing  
19    poor services to their customers. I mean, that's also kind of  
20    an obvious thing that we know.

21    **Q.** So are you disagreeing that if the App Store's quality is  
22    decreasing, that revenues earned by developers wouldn't be  
23    decreasing too?

24    **A.** I would characterize it in a different way. I would  
25    characterize it as -- as users and developers are harmed as a

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1 result of the poor search and discovery services as the result  
2 of just increased transactions cost and inefficient matching  
3 and other things like that. That's how I think about it.

4 **THE WITNESS:** Yeah, let me adjust this. Hopefully  
5 this is -- is that better?

6 **THE REPORTER:** Yes.

7 **THE WITNESS:** Thank you.

8 **BY MR. SWANSON:**

9 **Q.** Dr. Evans, merely charging a monopoly price is not  
10 anticompetitive, right?

11 **A.** It is not.

12 **Q.** In your opinion, the 30 percent commission that Apple  
13 charges, when adopted in 2008, was not anticompetitive, right?

14 **A.** That's correct.

15 **Q.** Or in 2009, correct?

16 **A.** That's correct.

17 **Q.** And your view is that in selecting a 30 percent commission  
18 in 2008, Apple was maximizing profit in the context of getting  
19 the iPhone business off the ground, right?

20 **A.** I do.

21 **Q.** A 30 percent commission model is used by several  
22 transaction platforms that distribute game apps, right?

23 **A.** As a headline rate, that's correct.

24 **Q.** And the Mac App Store has a 30 percent commission, right?

25 **THE REPORTER:** Excuse me, could you repeat that?

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1                   **MR. SWANSON:** My last question? I said, "The 30  
2                   percent commission model is used by several transaction  
3                   platforms that distribute game apps, right?"

4                   **BY MR. SWANSON:**

5                   **Q.** And I believe your answer was the headline rate, yes?

6                   **A.** That's correct.

7                   **Q.** And the Mac App Store has a 30 percent commission,  
8                   correct?

9                   **A.** That's correct.

10                  **Q.** And you had no reason to believe that the 30 percent  
11                  commission for the Mac App Store is supercompetitive today,  
12                  right?

13                  **A.** That's correct.

14                  **Q.** In this case, Dr. Evans, you have not offered any analysis  
15                  that shows that Apple has sacrificed short-term profits in  
16                  order to limit competition by Epic or any other developer,  
17                  correct?

18                  **A.** That is correct.

19                  **Q.** You understand that developers must use Apple's  
20                  intellectual property to develop apps for the iOS ecosystem,  
21                  right?

22                  **A.** That is correct.

23                  **Q.** As an economist, you agree that compulsory licensing  
24                  occurs when an IP holder is forced to license its IP, correct?

25                  **A.** Repeat that, please.

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1 Q. As an economist, you agree that compulsory licensing  
2 occurs when an IP holder is forced to license its IP, correct?

3 A. I agree that's the definition of "compulsory licensing."

4 Q. And that is the definition that economists use, correct?

5 A. I don't know that that is a term economists generally use.  
6 I mean, that is a term that an economist writing about  
7 intellectual property matters would use because that's how it  
8 is ordinarily described. But it's not a....

9 Q. Is it your opinion, as an antitrust economist, that when  
10 Apple became a monopolist, according to you, in 2010, it had a  
11 duty at that point to allow developers to offer an open,  
12 competing iOS app stores?

13 A. I'm not answering your question quickly because I'm  
14 dwelling on the word "duty."

15 I can only answer that question in the context of an  
16 analysis of anticompetitive conduct. It doesn't have an  
17 abstract duty to do that.

18 The question is, once it acquires monopoly power, are  
19 there antitrust reasons why it would have to cease practices  
20 that prevent competition in app distribution. And if that  
21 would determine that it had acquired monopoly power and that  
22 it engaged in anticompetitive foreclosure, then in that  
23 situation, as an economist, I would say then it has an  
24 obligation to cease that behavior and do the things that are  
25 necessary to end those foreclosure practices.



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1 Q. Let's break that down for this case.

2 It's your opinion that before 2010, it wouldn't be  
3 anticompetitive for Apple, and it wasn't anticompetitive for  
4 Apple, to decline to license developers to have competing  
5 iOS App Stores, correct?

6 A. Prior to having substantial market power, that's correct.

7 Q. And, in fact, if Apple had decided not to license  
8 developers at all, that, in your view, would not have been  
9 anticompetitive, correct?

10 A. That is correct.

11 Q. Now, in your opinion, the only two competitive paths open  
12 to Apple were to license developers to use iOS to compete  
13 with the App Store once 2010 rolled around or never to license  
14 developers at all; is that right?

15 A. If you could just state those two choices for me one more  
16 time, just so I have them precisely in mind before I give you  
17 an answer.

18 Q. In your opinion, the only two competitive paths open to  
19 Apple were to license developers to use iOS to compete with  
20 the App Store when 2010 rolled around or never to license  
21 developers at all.

22 A. Yes, I think you -- I think you could think of the choice  
23 that way --

24 Q. Are you familiar with the --

25 A. -- as of 2010.

## EVANS - CROSS - SWANSON

1 Q. You're familiar with the so-called intellectual property  
2 guidelines that are issued by the Department of Justice  
3 Antitrust Division and the FTC?

4 A. I am.

5 Q. And you are aware that those guidelines indicate that the  
6 antitrust agencies ordinarily will not require the owner of  
7 intellectual property to create competition in its own  
8 technology.

9 Is that a fair statement? Are you aware of that?

10 A. With an emphasis on "ordinarily" and the qualification  
11 that the guidelines also talk about the obligations as a  
12 result of anticompetitive tying.

13 Q. And you agree with the principle that ordinarily, the  
14 owner of intellectual property should not be required to  
15 create competition in its own technology, right?

16 A. I do.

17 Q. You agree that Apple has established a reputation for the  
18 quality of its products, don't you?

19 A. I do.

20 Q. Apple has established a reputation for customer security  
21 for both its devices and its apps, right?

22 A. It has established that reputation, uh-huh.

23 Q. Protecting iPhone users from security threats is a  
24 procompetitive benefit, right?

25 A. It is.

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1 Q. In your opinion, Apple also, in recent years, has been a  
2 vocal advocate for consumer privacy, correct?

3 A. It has been.

4 Q. And that support for consumer privacy differentiates Apple  
5 from ad-supported platforms like Facebook and Google, right?

6 A. It does.

7 Q. Apple has also established the reputation for the  
8 reliability of its products, right?

9 A. Yeah, I think that's right.

10 Q. And Apple's brand is consistently recognized as one of the  
11 most valuable in the world.

12 You would agree with that too, wouldn't you?

13 A. It is a very valuable brand.

14 Q. And you are not withdrawing your statement, are you, that  
15 there isn't much controversy that Apple's rules have enabled  
16 it to create a high-quality app ecosystem for the iPhone?

17 A. I am not withdrawing that at all.

18 Q. Let me change topics.

19 MR. SWANSON: Your Honor, at some point soon -- I'm  
20 going to talk about profitability now with Dr. Evans, and at a  
21 certain point, which I think will be at the end of my  
22 examination, we will hit a point where I do want to ask some  
23 questions that turn on --

24 THE COURT: And how long will that portion be?

25 MR. SWANSON: I think that it's as much a question

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1 for Dr. Evans as me, but I would say -- I would hope not more  
2 than 10 minutes.

3 **THE COURT:** So what we will do, then, is you finish  
4 up everything but that. Then Mr. Bornstein will take him on  
5 Redirect, and when we finish everything that can be open, at  
6 that point, I will seal the courtroom for the short period of  
7 time on those topics.

8 **MR. SWANSON:** Okay. Thank you.

9 **BY MR. SWANSON:**

10 **Q.** Dr. Evans, Epic generates the vast bulk of its revenue  
11 from the sale of V-Bucks, right?

12 **A.** Yes.

13 **Q.** You heard Mr. Sweeney testify that V-Bucks have no  
14 marginal cost, didn't you?

15 **A.** The currency has no marginal cost.

16 **Q.** I'm sorry?

17 **A.** The currency has no marginal cost.

18 **Q.** And you heard Mr. Sweeney testify to that, didn't you?

19 **A.** I did not.

20 **Q.** Have you been reviewing the testimony in the case so far?

21 **A.** I have not had the opportunity to read all the testimony.  
22 I've -- I've looked at some things, but I have not read all  
23 the testimony, or much of it.

24 **Q.** Did you read Mr. Sweeney's testimony at all?

25 **A.** I did. So I have read the -- I was able to read the

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1 proceedings for the first day, and that included Mr. Sweeney's  
2 testimony.

3 Q. Have you been able to read or listen to any of the  
4 testimony after the first day, up to the point when you took  
5 the stand?

6 A. I have not.

7 Q. So your testimony is not in reliance on anything -- any of  
8 the evidence that has been received orally in the court since  
9 the first day of the trial, correct?

10 A. Yeah, I think that's correct.

11 Q. Now, you agree with Mr. Sweeney that there's no marginal  
12 cost for V-Bucks?

13 A. I do.

14 Q. And you understand that Epic sets the price of V-Bucks  
15 without regard to marginal cost, correct?

16 A. By definition, that has to be true.

17 Q. And with no marginal cost, Epic has a near 100 percent  
18 margin on V-Bucks sales, correct?

19 A. By definition, that's true. That's a very odd way of  
20 thinking about a -- thinking about a digital currency for a  
21 game platform that is monetizing itself through the sale of  
22 in-app content.

23 Q. Your answer is "yes," right?

24 A. For the narrow purpose that you are making that statement,  
25 yeah, I do.

## EVANS - CROSS - SWANSON

1 Q. You agree that a profit margin alone is not sufficient to  
2 show monopoly power?

3 A. I do.

4 Q. In the past, isn't it true that you've written that using  
5 profit margins or markups is a flawed approach to assessing  
6 market power?

7 A. I think the constellation of my writings on profit  
8 measures and profit margins is that they should be used with  
9 caution and that they should be used in recognition that  
10 accounting profits can, in reporting cases, not be good  
11 proxies for measuring economic profits.

12 I think if we took a look at the various things I've  
13 written on this -- and I've written about this, I think, in a  
14 number of papers -- that's a pretty good summary.

15 Q. Well, you have written a lot on this, and my question was  
16 about something specific.

17 Isn't it true that you've written that using profit  
18 margins or markups is a flawed approach to assessing market  
19 power?

20 A. I may have written that. I've written a lot of things. I  
21 don't recall that precise statement, but that is not the --  
22 that is not the general view that is provided by me through  
23 the many writings that I've done on this topic.

24 Q. Well, haven't you claimed that using profit margins to  
25 assess market power gives us a sense of scientific precision,

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1 but it is false precision?

2 **A.** It can be.

3 **Q.** Well, haven't you written that?

4 **A.** I think I've written close to 2 million words, Mr. Sweeney  
5 (sic). So whether I wrote those particular words, I don't  
6 recall. It's possible that I did. I don't know.

7 **THE COURT:** Mr. Swanson.

8 **THE WITNESS:** Mr. Swanson. I'm sorry.

9 **MR. SWANSON:** If Mr. Swanson was Mr. Sweeney, I  
10 wouldn't be standing here.

11 **THE WITNESS:** I apologize to both Mr. Swanson and to  
12 Mr. Sweeney.

13 **MR. SWANSON:** Well done.

14 **BY MR. SWANSON:**

15 **Q.** Now, business documents don't report economic profits,  
16 right?

17 **A.** That's correct.

18 **Q.** And you're using business documents here as a proxy for  
19 economic profits; is that correct?

20 **A.** That's an -- I don't agree with those choice of words.  
21 I'm using profit and loss statements presented in business  
22 documents where those profit and loss statements provide  
23 measures of profits as a proxy for economic profits.

24 **Q.** Do the documents that you are using show profits as a  
25 return on invested capital?

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1       **A.** They do not.

2       **Q.** As an economist, would you normally focus on profit  
3 measures that look at returns on invested capital?

4       **A.** In certain circumstances, I would do that.

5       **Q.** If the data were available, would you look at it?

6       **A.** In circumstances where that was a valuable thing to do, I  
7 would do so.

8       **Q.** Well, would that be a valuable thing to do in this case?

9       **A.** I -- I don't believe it would be a materially important  
10 thing to do in this case, because the evidence here is that  
11 there has not been, with regard to the App Store itself,  
12 substantial investment aside from what was made early on. I'm  
13 not saying none.

14       But the -- you know, the profit and loss statements in the  
15 business records, you know, provide some indication of the  
16 operation of the business. It's not like -- it's not like  
17 some businesses where there are heavy investment costs in  
18 building factories or doing research and development or the  
19 things that you would ordinarily think of, you know, some  
20 companies doing, you know, even developing video games. It is  
21 not that kind of a -- it's not that kind of a business.

22       So those investment costs are just not as materially  
23 important here as they would be in situations where the  
24 business was such that they would be.

25       **Q.** So your testimony is that you didn't consider it important



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1 to look at return on investment in this case?

2 **A.** That is correct.

3 **Q.** Now, you would agree, wouldn't you, that one problem for  
4 an economist using accounting data about profit margins arises  
5 when a company sells several related goods and services that  
6 share common or joint costs?

7 **A.** I do.

8 **Q.** And you've written that accounting complications result  
9 when considering pricing strategies designed to maximize the  
10 sales of a group of related goods and services, rather than a  
11 single product, correct?

12 **A.** That's true.

13 **Q.** Would you agree that iPhones, iPads, and iOS apps  
14 are a group of related goods and services?

15 **A.** I do agree they are a group of related goods and services.

16 **Q.** You are familiar with the economic concept of joint costs,  
17 correct?

18 **A.** I am.

19 **Q.** Joint costs are when a cost or investment serves several  
20 products or activities, correct?

21 **A.** That's true.

22 **Q.** There is no meaningful economic method for allocating  
23 joint or shared costs, correct?

24 **A.** In the case of joint and shared costs, that's correct.

25 **Q.** Economists regard allocations of joint costs as arbitrary,

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1 don't they?

2 **A.** If there are joint costs, the allocations of those joint  
3 costs are arbitrary from an economic standpoint. Companies  
4 obviously do this, but....

5 **Q.** Accountants do this all the time, right?

6 **A.** Yeah, that's correct.

7 **Q.** But economists view those allocations as economically  
8 arbitrary, you agree?

9 **A.** I do.

10 **Q.** Now, you heard Mr. Sweeney testify when he agreed that any  
11 effort to attribute the cost of developing shared technology  
12 to a particular product use or service would be arbitrary?  
13 Did you hear that testimony?

14 **A.** I did. Well, rather, I read that testimony.

15 **Q.** Okay. And you read Mr. Sweeney's testimony that he agreed  
16 that within most parts of Epic, if someone were to point at  
17 one product or service that Epic offers and declare a precise  
18 profit margin for it, that assessment would be fundamentally  
19 flawed? You read that?

20 **A.** I did read that. I don't recall the particular context  
21 for it, but I did.

22 **Q.** Okay. Don't you agree, as an economist, that the iOS  
23 ecosystem involves many joint or shared costs?

24 **A.** With regard to the relationship between the App Store and  
25 iPhone, I don't agree with that at all. We have profit and

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1 loss statements from Mr. Cook's files that actually show how  
2 Apple thinks about this business, the extent to which Apple  
3 thinks that there are joint costs -- I'm sorry.

4 Is it possible for me to respond to that question in a --  
5 **Q.** Well, I suspect Mr. Bornstein can ask you to elaborate.

6 My question was do you agree, as an economist, that the  
7 iOS ecosystem involves many joint or shared costs?

8 **THE WITNESS:** If I could just ask for guidance on  
9 answering these questions, whether it's possible for me to  
10 refer to the evidence that I actually have.

11 **THE COURT:** So, first, just a foundational answer.  
12 Is it shared costs or not? "Yes" or "no"?

13 **THE WITNESS:** Largely, no.

14 **THE COURT:** Okay.

15 **BY MR. SWANSON:**

16 **Q.** All right. Dr. Evans, you mean you don't agree that  
17 investments in Apple's iOS devices and technology help drive  
18 the demand for both the devices and iOS apps?

19 **A.** I do agree they do.

20 **Q.** And, for example, didn't Apple's investments in technology  
21 to make software by *Fortnite* playable on the iPhone drive both  
22 app sales and iPhone sales?

23 **A.** They did.

24 **Q.** Don't you agree, as well, that investments in the App  
25 Store serve to drive sales of iOS devices?

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1       **A.** I do.

2       **Q.** Doesn't it make sense to you, as an economist, to look at  
3 all iOS-related revenues and costs together, rather than  
4 trying to isolate revenues and costs for individual products?

5       **A.** No.

6       **Q.** Well, did you tell the FTC that back when you made your  
7 presentation in 2016 about Apple's mobile platform business?

8       **A.** If you could remind me and if I could see the --

9       **Q.** It would be in Binder 1, DX5550. Let me find it as well.

10                               (Pause in the proceedings.)

11                   **THE WITNESS:** Thank you, Mr. Swanson. I have the  
12 document. If you could refer me to the page.

13       **BY MR. SWANSON:**

14       **Q.** Yes. Could you turn to Slide 32. So that's the start of  
15 this segment when we looked at this before. So this was the  
16 presentation that you made, or at least submitted to the FTC,  
17 entitled "Economic Analysis of Apple's App Store Business,"  
18 right?

19       **A.** I see it.

20       **Q.** So now turn to Slide 34.

21               Now, there does appear to be at least half a line cut off  
22 at the bottom. This is how the document was produced to us,  
23 so if there is an issue on this, we would ask you, Dr. Evans,  
24 to check your files again and produce a clearer version. But  
25 at any rate, we can work with this slide.

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1 In the presentation that you made to the FTC, you looked  
2 at overall iOS-related revenue, including from device sales  
3 and the App Store, correct?

4 **A.** That's correct.

5 **Q.** And you said here that Apple earns a small portion of  
6 iOS-related revenue from the App Store, right?

7 **A.** That is correct.

8 **Q.** And by "iOS-related revenue," you meant App Store revenue  
9 and iOS device revenue together, correct?

10 **A.** That is correct.

11 **Q.** And on the right-hand side of this slide, you say -- and  
12 this, I think, is -- yeah, this is at the top:

13 "Apple's business model for App Store based on  
14 selling handsets and driving positive feedbacks  
15 effects."

16 Do you see that?

17 **A.** That's correct.

18 **Q.** And on the left side of that slide, are you telling the  
19 agency to look at iPhone profits together with App Store  
20 profits?

21 **A.** So I'm not -- I would have to review the presentation more  
22 carefully, but I believe what is going on here is I'm  
23 describing -- I'm describing the -- Apple's business model  
24 with regard to sale of devices and the operation of the App  
25 Store.

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1 I think that -- I think, unless I'm missing something, the  
2 description here is consistent with my written testimony,  
3 where I've been very clear that the App Store and apps are  
4 highly related to the sale of iPhones.

5 **Q.** Well, aren't you telling the FTC here that the App Store  
6 generates a relatively small percent of Apple's total  
7 iOS-related revenues, but the thing for the agency to focus on  
8 is that Apple's business model is to drive the sale of  
9 iPhones and the agency should look at iPhone profits, as well  
10 as App Store profits?

11 Isn't that a fair read of this?

12 And if you can't characterize it, Dr. Evans, we can let it  
13 speak for itself.

14 **A.** So I -- the statement in the heading of the slide is what  
15 I told the FTC, and it is what I believe. Apple uses apps to  
16 drive iOS device adoption and profits. That's what it says  
17 there. I agree with that now, and that's the basic business  
18 model that I have explicated in my written testimony in this  
19 matter. So I don't -- I just don't see the contradiction.

20 **Q.** Well, Dr. Evans, this is the point at which I will have to  
21 turn to confidential data.

22 **MR. SWANSON:** So, Your Honor, I'll just provisionally  
23 pass the witness at this point.

24 **THE COURT:** And you may pass subject to that -- to  
25 re-opening.

1 Redirect.

2 **THE WITNESS:** May I just have a quick water break  
3 while we --

4 **THE COURT:** You may.

5 Whenever you are ready, Mr. Bornstein.

6 **MR. BORNSTEIN:** Thank you, Your Honor.

7 **REDIRECT EXAMINATION**

8 **BY MR. BORNSTEIN:**

9 **Q.** Dr. Evans, let me begin with a few instances in which  
10 Mr. Swanson showed you some material from your deposition in  
11 an effort to impeach your testimony here today.

12 I'll start with on pages 27 and 28 of this morning's  
13 transcript, you were asked a question as to whether all  
14 developers on one side of the iOS app distribution market  
15 are present -- are present on the developer's side of the  
16 mobile OS market.

17 Do you remember that question?

18 **A.** I do.

19 **Q.** And do you remember you answered here in court today, "No,  
20 but I can explain"?

21 **A.** I do.

22 **Q.** All right. Let's just look for a moment at your  
23 deposition, which you should still have in front of you.

24 Do you?

25 **A.** I actually don't recall having my deposition.

1           **THE COURT:** So, Mr. Bornstein, you can't -- he can't  
2 read his own deposition in court. He needs to testify.

3           **MR. BORNSTEIN:** That's fine, Your Honor.

4           **BY MR. BORNSTEIN:**

5           **Q.** The -- Mr. Swanson then read to you a portion of your  
6 deposition in which you answered that very same question, "In  
7 principle, yes."

8           Do you recall that?

9           **A.** I do.

10          **Q.** All right. Can you please give the explanation that you  
11 offered to Mr. Swanson but he didn't let you give?

12          **MR. SWANSON:** Objection, Your Honor.

13          **THE COURT:** Well, it's -- the form is objectionable.  
14 We just need the answer. Can you tell us what the answer is?  
15 This is Redirect, so now you can explain.

16          **THE WITNESS:** Yes. So in the -- in the smartphone OS  
17 market, and just narrowing it down to developers and users who  
18 are involved with iOS apps, the developer at that point in  
19 time has created an app, consumers have an iPhone, they're  
20 interested in getting apps. That's the point in time.

21          Over time at various points, those developers are likely  
22 to want to distribute those apps, so they probably are  
23 distributing in the iOS distribution market, you know, so  
24 long as they're still in business after creating the app, and  
25 iOS consumers over time at various points are interested in



1 getting apps, not all at the same -- not all at the same point  
2 in time.

3 So it's the same kinds of consumers and they are likely to  
4 be participating in both markets, but there's nothing that  
5 guarantees that they are going to be. I mean, it could be  
6 that -- I mean, there are many iOS -- there are some iOS  
7 users who don't use apps very much and, therefore, at some  
8 point in time, they actually may not be interested in iOS  
9 app distribution services.

10 **Q.** Well, Dr. Evans, let's take this outside of the iOS  
11 universe and talk about Windows.

12 **A.** Okay.

13 **Q.** Are all developers on one side of the Windows OS platform  
14 also on the developer side of, say, the Steam platform?

15 **A.** No.

16 **Q.** And why is that?

17 **A.** So there's a whole bunch of developers who are not game  
18 developers and, therefore, Steam is irrelevant. And there are  
19 many other app stores that they could turn to, including, in  
20 the case of games, direct distribution.

21 **Q.** And so if there were, counterfactually, multiple app  
22 stores available on the iOS platform, would you have all the  
23 same developers on the iOS platform as on the App Store  
24 platform?

25 **A.** No, of course not. So some developers would use the iOS

1 App Store and some wouldn't.

2 Q. And is there a distinction between the OS, the iOS  
3 platform, and the App Store platform?

4 A. A very large distinction. One is an operating system  
5 providing an app platform and the other one is a store,  
6 distributor.

7 Q. Mr. Swanson mentioned once or twice a subpoena that was  
8 served on you, and you referred to some motion practice before  
9 Magistrate Judge Hixson.

10 Did you personally resist producing any materials that  
11 were requested by that subpoena?

12 A. Not at all.

13 Q. Do you happen to know what the subject matter of that  
14 motion practice was?

15 A. I believe so. The issue was the material that I had was  
16 confidential, and I didn't have the ability on my own to  
17 provide confidential material. These are the two documents  
18 for the FTC that we talked about earlier today.

19 Q. Speaking of the FTC, did you actually go in personally and  
20 have conversations with people at the FTC about these matters?

21 A. I did.

22 Q. Okay. The two-brand market in your written Direct got  
23 discussed a few times.

24 Can you tell the Court what market you believe to be and  
25 have opined to be is the right app distribution market that

1 the Court should adopt here?

2 **A.** It is the iOS app distribution market. I believe it  
3 should be the single-brand market.

4 **Q.** Okay. And why did you have any discussion at all in your  
5 report of a two-brand market?

6 **A.** Because the -- Apple's experts have raised the question on  
7 whether it's inappropriate to define a single-brand market.  
8 And my response to that was it could only be a two-brand  
9 market because there is only one other operating system that  
10 could be included in the market.

11 And if, for the sake of argument, one was to define a  
12 two-brand market, I would still reach the same conclusion  
13 because the second kind of app distribution was not a relevant  
14 competitive constraint for iOS app distribution.

15 **Q.** But the economics here lead you to conclude that the  
16 proper market is, in fact, what?

17 **A.** The iOS app distribution market.

18 **Q.** Do you recall some questions from Mr. Swanson about  
19 substitution among different types of apps?

20 **A.** Yes.

21 **Q.** He referred to, I think, a zombie game and a graphing  
22 calculator, for example?

23 **A.** I do recall that.

24 **MR. BORNSTEIN:** Okay. Can we call up Slide 7 from  
25 yesterday's presentation, please?

1 **BY MR. BORNSTEIN:**

2 **Q.** Can you explain -- do you believe that the fact that  
3 people don't substitute zombie game transactions with graphing  
4 calculator purchases, does that destroy your relevant market  
5 here?

6 **A.** No. It's completely irrelevant.

7 **Q.** Okay. Can you explain why you believe that to be  
8 completely irrelevant?

9 **A.** Because the market involves the provision of distribution  
10 services to diverse apps. So the product that is the central  
11 focus is not the apps; it's the product that is being  
12 supplied, which, in the case of the App Store, is App Store  
13 distribution services, and in terms of an iOS app  
14 distribution market overall, is the provision of distribution  
15 services to any app that is interested in using those  
16 distribution services, and on the other side of the market,  
17 the consumers who are looking for those apps.

18 **Q.** So in your market definition, what -- in the market you  
19 have defined, what role does the developer of the zombie game  
20 app play, for example?

21 **A.** They are a customer of the app -- they are a customer in  
22 the app distribution market.

23 **Q.** And what role does the developer of the graphing  
24 calculator app play?

25 **A.** They are a customer of the app distribution platform.

1 Q. And are they any different, in terms of analyzing the  
2 structure of this market, from, say, the restaurant or the  
3 hardware store on the bottom part of the slide in connection  
4 with Amex?

5 A. No, it's exactly the same. They are customers -- they are  
6 all customers of a platform that is providing a common service  
7 to all of them.

8 Q. Okay. And is it at all uncommon to have a  
9 business-to-business market like this in which the customers  
10 don't then compete with each other downstream?

11 A. It's utterly common.

12 Q. I'm sorry. Say that again?

13 A. It is utterly common.

14 Q. You said "utterly common"?

15 A. Yes.

16 Q. Okay.

17 A. I could have said very common, just to make it easier.

18 Q. "Utterly common" sounds too much to the court reporter  
19 perhaps like uncommon. That's why I wanted to make sure the  
20 record was clear.

21 A. Thank you.

22 Q. And they are in that respect no different, for example,  
23 than the automobile manufacturer and the furniture  
24 manufacturer here, who are customers of the steel  
25 manufacturer; is that right?

1       **A.** That's correct.

2               **THE COURT:** Before we leave this topic, I'm trying to  
3 envision this, Mr. Evans.

4               It looks like you've got -- you know, on one side you have  
5 all these developers who are developing apps.

6               **THE WITNESS:** Yep.

7               **THE COURT:** And then over here, you have billion -- a  
8 billion set of customers.

9               And what we really have is we have a distribution  
10 channel -- let's stay away from the "platform" word for a  
11 moment -- but you've got a distribution channel that connects  
12 these two groups.

13              With me so far?

14              **THE WITNESS:** That's correct.

15              **THE COURT:** It sounds like what you are saying is  
16 that the connection of these two groups should have many  
17 distribution channels, not just one.

18              **THE WITNESS:** That is correct.

19              **THE COURT:** But what Amex teaches is that really, in  
20 this digital world, we have consumers and developers and in  
21 between we have a platform, and so we are kind of dealing with  
22 this overlay of a platform analogy.

23              And in this platform, Apple has put a toll booth and Apple  
24 has said, If you want to make certain kinds of purchases,  
25 you've got to go through my toll booth to get to the consumer.

1           **THE WITNESS:** Or if I could interrupt there just to  
2 clarify.

3           So Apple is doing two things: It's saying that We're  
4 going to be the -- our platform is going to be the only  
5 distribution channel, and for our distribution channel, yes,  
6 for a certain but not all -- a certain set of apps, we are  
7 going to be not only the distribution -- in addition to being  
8 the distribution channel for a certain set of apps, we are  
9 going to erect a toll booth that charges for something else,  
10 which is the transactions that the developer is doing with its  
11 own consumer.

12           **THE COURT:** But the platform and the channel is all  
13 technology developed by the owner, and the owner of that  
14 particular platform is Apple.

15           **THE WITNESS:** That is correct.

16           **THE COURT:** So in order for that channel to be used,  
17 you have to use that technology. That's all proprietary.

18           **THE WITNESS:** That's correct.

19           **THE COURT:** And they have set up various channels.  
20 Some of those channels have no toll booth and some do, right?  
21 But when we're looking at the market, we're looking at all of  
22 these various channels that are going across proprietary  
23 technology, right, to get to the consumer.

24           **THE WITNESS:** I think I'm with you so far.

25           **THE COURT:** And the objection is, is that on one of

1 these many channels, there's a toll booth, which doesn't exist  
2 on all of them, but it exists on some of them.

3 And what you are saying is that, No, we want you to have  
4 it either free or we want to develop our own channel over your  
5 proprietary platform. I'm just trying to envision what it is  
6 you're saying. That's what it sounds like you're saying.

7 **THE WITNESS:** Yeah, if I could divide it into the two  
8 different activities that's going on on here. So let me just  
9 try that. Because I like the analogy to -- I like the analogy  
10 to the channels.

11 One channel is app developers want to get their app into  
12 the hands of consumers. That's the distribution channel. So  
13 that's a distribution channel, and Apple has said, For iOS  
14 apps, we are going to be the only distribution channel. So  
15 that's one thing that's going on.

16 Then the second thing that's going on is in addition to  
17 our being the only distribution channel for apps, it is also  
18 the case that now let's divide that channel into many channels  
19 for something else, which are the transactions that the  
20 customer who now has an app engages in with the developer  
21 whose app they have, that Apple is going to set up a toll  
22 booth for those particular transactions where that channel  
23 within a channel are now the digital content apps.

24 So that's how I -- that's how I picture what you have just  
25 said.



1           **THE COURT:** Okay. That time was on me,  
2           Mr. Bornstein. Go ahead.

3           **MR. BORNSTEIN:** Thank you, Your Honor.

4           **BY MR. BORNSTEIN:**

5           **Q.** Let me move to a -- what may be a related set of  
6           questions.

7           You got some questions from Mr. Swanson this morning about  
8           whether an Uber driver could choose to use her own payment  
9           solution rather than one provided by Uber.

10          Do you recall that?

11          **A.** I do.

12          **Q.** And I think the implication was that that was supposed to  
13          be an analogy to the App Store and in-app payment.

14          Do you agree with that?

15          **A.** I agree that was the intent.

16          **Q.** Let me give you a somewhat expanded hypothetical.

17          Suppose the Uber driver and the rider hit it off, and they  
18          arrange that in the future, that driver is going to continue  
19          to give that rider, you know, rides, and they exchange phone  
20          numbers and maybe they set a regular schedule.

21          Would Uber require the driver, in that circumstance, to  
22          continue to use its payment solution for those future rides  
23          that they had arranged themselves?

24          **A.** No.

25          **Q.** Which one do you think is a better analogy to in-app

1 payment, mine or Mr. Swanson's?

2 **A.** Yours.

3 **Q.** Okay. Can you explain why?

4 **A.** Because the Uber platform is providing a -- just like any  
5 company is selling something to a set of customers, Uber is  
6 providing a service to the riders and to the drivers, and it  
7 has a payment solution for taking payment for that, which is  
8 then using to divvy up between the driver and the consumer.  
9 It's selling that service.

10 What you've described is something that's occurring later.  
11 It's not part of that platform, it's not part of that  
12 particular service; it's something that is happening  
13 separately between the Uber driver and the -- between the  
14 driver and the consumer.

15 **Q.** So let's take those principles that you just articulated  
16 and move them from the Uber context into the App Store  
17 context.

18 Can you do that transposition for us?

19 **A.** Yes. In the App Store -- in the iOS distribution  
20 context, there is the distribution process of the developer  
21 getting the app to the consumer and all the search and  
22 discovery technology and all that kind of stuff that stores  
23 generally involved in -- online marketplaces and stores  
24 generally engage in.

25 After that distribution has taken place, we have a

1 consumer who has an app and -- let's say Tinder -- and we have  
2 a developer who owns that app and has a relationship with that  
3 customer.

4 And what IAP, then, is then for that different thing, with  
5 the transactions between the developer and its own customer,  
6 has, basically, a toll booth concerning --

7 **THE COURT:** Mr. Evans, on *Fortnite*, just like your  
8 Uber example, you can go to the web and get V-Bucks. You can  
9 go to Steam and get V-Bucks. Just like in the Uber example  
10 you just gave, they are not using the Uber app, right? They  
11 are not using the app itself for that subsequent transaction.

12 **THE WITNESS:** That's correct.

13 **THE COURT:** They made a phone call, they figured it  
14 out, they've --

15 **THE WITNESS:** Yep.

16 **THE COURT:** -- figured out if they are going to give  
17 him the physical credit card or not.

18 **THE WITNESS:** Yep.

19 **THE COURT:** Same thing happens in Epic Games.

20 **THE WITNESS:** That's true.

21 **THE COURT:** So there is nothing about that  
22 distribution process that impacted differently, given your  
23 Uber example, if I transpose that to Epic.

24 **THE WITNESS:** Well, it does, really. And the  
25 difference is that if I have an iOS user -- an iOS app

1 user of *Fortnite*, it is theoretically possible that that iOS  
2 app user could go to the -- could go to their PC and buy  
3 V-Bucks. I agree that is a -- that is not just a possibility,  
4 but that that sometimes happens.

5 The problem here is that two things are going on, and it  
6 goes back to the discussion we had yesterday about  
7 anti-steering provisions. The iOS *Fortnite* user, Epic is  
8 not able to message the iOS app user and tell them, You  
9 could go to the web and get this more cheaply, or, I really  
10 encourage you to go to the web and get V-Bucks there.

11 So the problem here is a combination of both requiring  
12 Epic to use the IAP in the iOS *Fortnite* app, in combination  
13 with also putting a whole set of barriers that doesn't make it  
14 impossible, but that makes it much more difficult for Epic to  
15 communicate to the iOS app user that they have another  
16 alternative to go to.

17 **THE COURT:** So if there was no anti-steering  
18 provision, then that would be fine, because then the customer  
19 could choose whether they wanted to stay and make the purchase  
20 on the app or do it some other way, right?

21 Because, of course, antitrust law doesn't compare -- care  
22 about Epic Games; it can -- it cares about competition. It  
23 cares about the consumer.

24 **THE WITNESS:** I would agree with you with one  
25 important qualification.

1           **THE COURT:** Okay.

2           **THE WITNESS:** There are certain apps where what  
3           you've just described is right at the time -- for the time  
4           being in the sense that there is a web version of the app and  
5           it's possible to message people to go to the web app and so  
6           forth. And in that case, if the anti-steering provisions went  
7           away, that wouldn't -- that wouldn't eliminate the market  
8           power that Apple has here, but it would certainly diminish it.

9           There are many, many other apps, including game apps, for  
10          which it would not be -- would not be much of a solution at  
11          all.

12          So, first of all, there are apps where there is no PC --  
13          where there is no PC version, and then there are,  
14          furthermore --

15          **THE COURT:** Have you done any study on this -- that  
16          is, in terms of quantification, given that most apps are free  
17          and things like that -- have you done any real analysis, or  
18          was this your thinking about it overnight in response to my  
19          questions?

20          **THE WITNESS:** No --

21          **THE COURT:** Which?

22          **THE WITNESS:** Yeah, I've been working in this area  
23          for a long time, so if you're asking me whether I did a  
24          specific study in the course of this case, I have seen data in  
25          this case concerning the extent to which game apps are

1 available on PCs. So I've seen that data on game apps,  
2 about -- actually, this is in Professor Hitt's report -- he  
3 reports that 74 percent of game apps -- I'm sorry, 74 percent  
4 of the top -- the top downloaded apps on iOS are also  
5 available on PCs. But -- you know, so I have seen data on  
6 that.

7 But the other category that I was going to mention are  
8 situations where a consumer is out and about and they are  
9 interested in -- they are interested in buying something,  
10 using their -- using their app. So it's true that later on  
11 they could go to their PC and do that, but when they are out  
12 and about, then it is not convenient for them to do that.

13 **THE COURT:** Right. But being out and about, using a  
14 mobile device for which someone has proprietary software, for  
15 someone who invested the capital to create that software,  
16 what's so bad about that?

17 **THE WITNESS:** I'm not sure I follow that.

18 **THE COURT:** Well, if they have the -- if they want to  
19 wait, if they are the kind of person who is judicious with  
20 their money and they want to wait until they get home, they  
21 can wait; but if they want convenience, isn't that a fine  
22 option for the consumer? And, in fact, isn't it a fine option  
23 for both parties; that is, the developer and the owner of the  
24 software?

25 **THE WITNESS:** I think in a lot of cases, it is not a

1 good option because, as I testified yesterday and as I go  
2 through in my written testimony, while I take the point that  
3 there are circumstances where using an app on a PC and moving  
4 back and forth between a smartphone and PC, that that is an  
5 option for people, by and large, in the world we live in now,  
6 where it is smartphone based and app based for much of what  
7 people do, I don't believe that's really a -- really a  
8 realistic option.

9 It is not no option, so I don't want to go so far as to  
10 say that it's not an option at all, but I am saying that in  
11 terms of the world we live in now, it is not a great option,  
12 and it is not a great source of substitution available to  
13 smartphone -- to iOS users and iOS app developers.

14 **THE COURT:** Proceed.

15 **MR. BORNSTEIN:** Thank you, Your Honor.

16 **BY MR. BORNSTEIN:**

17 **Q.** Let's move to a different subject.

18 You had some questions with Mr. Swanson about whether  
19 Apple was a competitor in the field of payment solutions or  
20 payment processing --

21 **A.** Yes.

22 **Q.** -- that shifted between the two.

23 **MR. BORNSTEIN:** Can we call up Slide 37, please?

24 **BY MR. BORNSTEIN:**

25 **Q.** Can you explain whether Apple would be a competitor for

1 payment solutions in the but-for world that you have used to  
2 analyze the IAP restriction here.

3 **A.** I believe it would be. In the absence of the IAP  
4 requirement, Apple had -- I haven't denigrated Apple's payment  
5 solution. I mean, it's -- for some developers, it's a great  
6 solution. I assume that in the but-for world, Apple has the  
7 ability to compete on the merits, offer its own payment  
8 solution, and would do so in competition with the payment  
9 solutions that developers can create themselves or get from --  
10 as a -- on a turnkey basis.

11 **Q.** So you said on what kind of basis?

12 **A.** Turnkey.

13 **Q.** Turnkey?

14 **A.** Yeah.

15 **Q.** There were a number of questions about when Apple, in your  
16 view, acquired market power in certain markets.

17 Do you recall those?

18 **A.** I do.

19 **Q.** Is it unusual in antitrust economics for conduct that is  
20 engaged in by a firm without market power to be treated  
21 differently from conduct that is engaged in by a firm that  
22 does have market power?

23 **A.** I guess I would characterize that as the intersection of  
24 antitrust economics and antitrust law.

25 **Q.** All right. Well, let me not have you venture into law.



1       **A.** I prefer not.

2       **Q.** Good. I'm sure the judge would prefer not, as well.

3               **THE COURT:** Well, I'd just stop him.

4       **BY MR. BORNSTEIN:**

5       **Q.** But to that end, let me ask you a question, because I fear  
6 that did happen on cross-exam.

7               You were asked a question about whether Apple's choices  
8 when it got to 2010 were either to stop licensing or to  
9 license to everyone.

10              Do you recall that question?

11       **A.** I do.

12              **MR. SWANSON:** Objection, Your Honor. The question  
13 was about competitive options, not unadorned choices.

14              **THE COURT:** You can recross.

15       **BY MR. BORNSTEIN:**

16       **Q.** Do you and can you offer a legal opinion on that question  
17 as to what Apple's permissible antitrust choices were at that  
18 point in time?

19       **A.** I can't and shouldn't offer legal opinion.

20       **Q.** And is that what you were doing here today, offering a  
21 legal opinion?

22       **A.** I hope not.

23       **Q.** Okay. You were also asked some questions about whether  
24 output had grown in app distribution.

25              Do you remember that?

1       **A.** I do.

2       **Q.** And you had a bit of a discussion about whether or not  
3 there was a precise definition of "output" that was being  
4 used.

5           Do you recall that?

6       **A.** I do.

7       **Q.** Is it possible as an economist to look at the trajectory  
8 by which a particular market has grown and form a definitive  
9 view just on that basis, as to whether or not there have been  
10 anticompetitive effects in that market?

11       **A.** Of course not.

12       **Q.** What's missing in terms of a step in that analysis?

13       **A.** To determine whether there's a causal relationship between  
14 conduct and anticompetitive effects is necessarily --  
15 necessary to compare a but-for world in which that conduct  
16 does not occur and an actual world in which it does. So the  
17 anticompetitive effects is based on the difference between the  
18 but-for world and the actual world.

19       **Q.** And can you think of other instances that you've  
20 researched in your time as an economist where there have been  
21 anticompetitive effects in a fast-growing market?

22       **A.** Well, it's -- I would say there -- I can't identify any  
23 particular -- well, so let me give you an example.

24           So a fast-growing market has historically been  
25 telecommunications for a long period of time. So many, many

1 years ago when I was much younger, I worked on the AT&T case  
2 for the U.S. Department of Justice and their allegations of  
3 anticompetitive behavior by AT&T. And that led to a  
4 decision -- that led to a settlement that broke up AT&T.

5 But during -- you know, during the entire course of the  
6 20th Century, there was a rapid growth in telecommunication  
7 services, rapid growth in the quality of telecommunication  
8 services, but that doesn't mean that there couldn't be  
9 anticompetitive conduct, nor does it mean that the world  
10 wouldn't be even better once that anticompetitive conduct is  
11 eliminated.

12 **Q.** Mr. Swanson asked you a few questions -- maybe more than a  
13 few questions -- about prior writings that you had offered on  
14 the subject of accounting profits and economic profits.

15 Do you recall that?

16 **A.** I do.

17 **Q.** Okay. And Mr. Swanson read you a few sentences from  
18 things that you had written, correct?

19 **A.** He did.

20 **Q.** And you said to him at one point that the sentences he  
21 was -- that a particular sentence he had read you did not  
22 reflect your general view as had been expressed in your  
23 writings on the relevance of accounting profits to economic  
24 profits.

25 Do you remember that?

1       **A.** I do.

2       **Q.** Can you explain what you meant when you said that the  
3 sentence that Mr. Swanson had plucked out of your writings did  
4 not reflect your general view?

5       **A.** I don't remember the particular sentence. I do remember  
6 my general view expressed in my writings, which is that it's  
7 important to be cautious in interpreting accounting profits,  
8 but that they -- but that doesn't mean that they can't be  
9 used.

10       **Q.** Well, Mr. Swanson focused you specifically once or twice  
11 on shared costs and joint costs.

12           Do you recall that?

13       **A.** Yes.

14       **Q.** And I think the implication of those questions may have  
15 been that -- well, I won't state the implication.

16           Do you remember questions about whether there is an  
17 economically meaningful way to allocate shared costs and joint  
18 costs?

19       **A.** I do remember that question and answer.

20       **Q.** Okay. Given your understanding of the economics on that  
21 issue, can you explain to the Court why it is that you do  
22 believe, as you testified yesterday, that Apple's profits in  
23 the App Store are relevant to whether or not Apple has  
24 monopoly power in app distribution for iOS?

25       **A.** Because I've reviewed -- I've reviewed profit and loss

1 statements, together with the testimony and other information  
2 regarding those profits and information regarding the  
3 existence of costs that need to be allocated. So I've been  
4 able to form an opinion that is informed by the information  
5 that's in the record.

6 Q. Okay. Well, is it always the case that accounting profits  
7 are a bad measure of economic profit?

8 A. No.

9 Q. And is it always the case that accounting profits are a  
10 bad measure of monopoly power?

11 A. No.

12 Q. And are there tools that economists have to figure out  
13 which case is which?

14 A. Yes.

15 Q. Have you done that here?

16 A. Yes.

17 Q. And have you explained that both yesterday and in your  
18 written testimony?

19 A. Yes.

20 MR. BORNSTEIN: All right. I think it's time for me  
21 to turn the witness back over to Mr. Swanson.

22 THE COURT: All right. Recross on the scope of his  
23 redirect.

24 MR. SWANSON: I'll be brief.

25 **RECROSS-EXAMINATION**

1 **BY MR. SWANSON:**

2 **Q.** Dr. Evans, you said that Epic is not able to message iOS  
3 app users to buy on the web.

4 First of all, do you believe Epic has any desire to convey  
5 to its customers generally that they can make buys on other  
6 than an impulse basis?

7 **A.** There was a first part of your question that I just wanted  
8 to clarify, because if I said it in the way you said it, I  
9 just want to make sure that I didn't say something  
10 incorrectly.

11 So when I referred to Epic's ability to message, I was  
12 referring to Epic's ability to message within the iOS app  
13 itself. And if I didn't say that clearly on redirect, I  
14 apologize, but that's what I intended to be talking about with  
15 regard to the anti-steering restrictions.

16 **Q.** Okay. And I appreciate that clarification, because I've  
17 written down exactly what I asked in my question. So that  
18 clarification is what I was seeking.

19 Now, the provision that Apple has in its rules says that  
20 there can be no call to action in the app, right?

21 **A.** That's correct.

22 **Q.** And it also says there can be no link in the app; is that  
23 correct?

24 **A.** That's correct.

25 **Q.** And it says there can't be a button in the app.

1       **A.** That's correct.

2       **Q.** Now, do you think that a platform owner should be  
3       required, as a matter of competitive activity, to advertise  
4       the options that are available to the consumer in --

5               **MR. BORNSTEIN:** Objection.

6       **BY MR. SWANSON:**

7       **Q.** -- its own store?

8               You do?

9       **A.** I didn't say anything.

10              **MR. BORNSTEIN:** That was me. I was just objecting to  
11       the legal conclusion requested here.

12              **THE COURT:** Well, I am not taking it for a legal  
13       conclusion.

14              You can answer.

15              **THE WITNESS:** It depends upon -- it depends upon the  
16       context. In the particular case here, the anti-steering  
17       provisions on viewing as is facilitating practices, so they  
18       are preventing a way to bypass -- bypass a tie that I view as  
19       anticompetitive.

20              There could be other situations in which what you  
21       described is perfectly innocuous, but in the context here,  
22       it's, in my view, not innocuous at all. It's tied up  
23       intimately with the conduct that we're focused on here.

24       **BY MR. SWANSON:**

25       **Q.** You agree that Epic, if it chose to, could take out an ad

1 in the Wall Street Journal, to say, Buy V-Bucks on our  
2 website, right?

3 **A.** I do.

4 **Q.** Epic could buy time on radio, television, internet  
5 advertising to convey that message if it desired to do so,  
6 correct?

7 **A.** I do.

8 **Q.** And you understand that Epic has only relatively recently  
9 made web purchases available, don't you?

10 **A.** I do.

11 **Q.** Why do you think Epic didn't do that earlier?

12 **MR. BORNSTEIN:** Objection, Your Honor. Calls for  
13 speculation.

14 **THE WITNESS:** I don't know.

15 **BY MR. SWANSON:**

16 **Q.** Do you have any economic insight into why Epic didn't make  
17 its V-Bucks available on the web earlier in time?

18 **A.** I don't.

19 **MR. SWANSON:** Your Honor, that's what I've got,  
20 subject to the --

21 **THE COURT:** Okay. Anything on those questions,  
22 Mr. Bornstein?

23 **MR. BORNSTEIN:** Nothing on those questions, Your  
24 Honor.

25 **THE COURT:** All right. At this point, the Court will



1 seal the courtroom. Let's see. Mr. Rifkin, you may remain.  
2 If I can have the press leave the courtroom, please,  
3 Ms. Aktins.

4 (Sealed proceedings were heard on next page.)  
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(Proceedings under seal concluded.)

(Proceedings resume in open court.)

**EXAMINATION**

**THE COURT:** When you went to the FTC in 2016, what was your purpose?

**THE WITNESS:** I was retained by a -- by an app developer who I believe has been disclosed in the redacted documents as a streaming music provider. That entity believed that Apple had engaged in anticompetitive behavior with respect to its business, and I was retained by them in much the same capacity that I have been retained here to provide economic analysis.

And as part of that process, I did a variety of work regarding both market definition, but also the anticompetitive effects of Apple's behavior.

And although, as is normally the case when one goes in to the FTC as a complainant, it was preliminary, the purpose was to talk to the FTC and provide background on why at least based on the evidence that was available at the time, I believed that Apple had engaged in anticompetitive conduct with respect to a competing app.

So this is a situation where it's a music-streaming provider that is competing with Apple music that had been introduced about a year earlier before the FTC presentation.

**THE COURT:** So the market definition was not

1 identical to the market definition that you created here,  
2 correct?

3 **THE WITNESS:** It is not. It's not --

4 **THE COURT:** And the reason that you changed the  
5 definition, even though they are both apps, is because there,  
6 the circumstances were different.

7 **THE WITNESS:** It's a combination of the circumstances  
8 were different and the conduct to be analyzed was different.

9 **THE COURT:** So you would agree that the Court -- and  
10 any court -- when we're assessing these issues, we have to  
11 look at the situation that is presented to us, correct?

12 **THE WITNESS:** Absolutely. Have to look at the  
13 conduct.

14 **THE COURT:** And did the FTC take action based upon  
15 your recommendation?

16 **THE WITNESS:** As far as I know, the FTC, at least at  
17 this point in time, has not taken action.

18 **THE COURT:** So they have declined and it has been  
19 five years?

20 **THE WITNESS:** I do not -- I do not know that.

21 **THE COURT:** You don't know one way or the other.

22 **THE WITNESS:** I do not.

23 **THE COURT:** All right. Anything on that,  
24 Mr. Bornstein?  
25

**FURTHER REDIRECT EXAMINATION**

**BY MR. BORNSTEIN:**

**Q.** In responding to the Court's question about whether the Court needs to take account of the circumstances presented, you said it is important to take account of the conduct at issue.

Can you explain a little bit more what you meant by referring to the "conduct at issue"?

**THE COURT:** Well, that -- okay. Go ahead.

**THE WITNESS:** Well, the starting point for any analysis is the conduct at issue, but I agree with the Court, is the conduct at issue in the context of the, you know, specific facts of the industry and all the issues that surround that. So the analysis has to be particular to the case.

**BY MR. BORNSTEIN:**

**Q.** Okay. And does the market definition analysis, as an economic matter, depend on who the plaintiff is?

**A.** It does not.

**MR. BORNSTEIN:** Nothing else, Your Honor.

**THE COURT:** Go ahead.

**FURTHER RECROSS-EXAMINATION**

**BY MR. SWANSON:**

**Q.** In the complaint to the FTC, one of the issues that you

1 discussed was anti-steering, was it not?

2 A. That's correct.

3 Q. And that's something you've been discussing today and  
4 yesterday in your testimony, correct?

5 A. Yes.

6 Q. And one of the issues raised by the complainant in that  
7 instance in 2016 was alleged self-preferencing by Apple,  
8 correct?

9 A. That's correct.

10 Q. And you've added -- you have a ten-page section of your  
11 opening report on self-preferencing, don't you?

12 A. I do.

13 Q. And you have addressed self-preferencing in your written  
14 direct, have you not?

15 A. That's correct.

16 MR. SWANSON: No further questions.

17 THE COURT: Okay.

18 MR. BORNSTEIN: If I may, Your Honor?

19 THE COURT: You may.

20 **FURTHER REDIRECT EXAMINATION**

21 **BY MR. BORNSTEIN:**

22 Q. Do you know, Dr. Evans, whether any other competition  
23 agencies have taken action with respect to the issues  
24 presented in your matter to the FTC?

25 MR. SWANSON: Objection. U.S. agencies?

1           **THE COURT:** So have you met with anyone else?

2           **THE WITNESS:** I have.

3           **THE COURT:** Okay. Well, I need foundation.

4           **MR. BORNSTEIN:** Okay.

5           **BY MR. BORNSTEIN:**

6           **Q.** Dr. Evans, in addition to the FTC, have you spoken to or  
7 provided submissions to any other antitrust regulators on the  
8 subject of the complaint in the FTC presentation?

9           **A.** Yes.

10          **Q.** And can you tell the Court whether any of those other  
11 antitrust regulators have actually chosen to initiate some  
12 kind of action on that issue?

13          **A.** Yes.

14          **Q.** Can you identify the specific regulator?

15          **A.** The European Commission.

16          **MR. SWANSON:** Objection, Your Honor. The non-U.S.  
17 submissions by Dr. Evans were not produced in response to the  
18 order by Magistrate Judge Hixson on the ground that they were  
19 not relevant.

20          **MR. BORNSTEIN:** That is incorrect, Your Honor. I  
21 reached an agreement with counsel for Apple that we would not  
22 have to produce the European presentation, which is identical  
23 to the FTC presentation, because the European Commission  
24 otherwise would have sought to intervene. And Apple decided  
25 that it would prefer not to cause that to happen.

1           **THE COURT:** Everybody knows that particular fact, so  
2       it's fine.

3           It would be my intention to unseal the portion of the  
4       transcript beginning with my questions, because there was  
5       nothing sealable, nor were there any -- any of your questions  
6       in response sealable related to those.

7           Any objection?

8           **MR. SWANSON:** No objection.

9           **MR. BORNSTEIN:** No, Your Honor.

10          **THE COURT:** All right. So the court reporter is  
11       instructed that once the Court started asking questions, that  
12       portion of the transcript will be unsealed.

13          The courtroom can be unsealed at this point, and that's  
14       all for Mr. Evans.

15          Okay. Let's go ahead and open -- Ms. Dunn, can you open  
16       those doors, let them back in.

17          Sir, you may -- you're excused.

18          **THE WITNESS:** Thank you very much, Your Honor.

19          **THE COURT:** Do I have the public back in and the  
20       attorneys.

21          For those coming into the courtroom and for the public and  
22       media, the Court did ask a series of questions which I do not  
23       believe warrant sealing. When the transcript comes out, those  
24       portions have been deemed unsealed.

25          We are at 12:33. We are going to go ahead and we're going

1 to take our break.

2 Who will be the next witness up, Ms. Forrest?

3 **MS. FORREST:** Your Honor, our next witness will be  
4 Dr. Susan Athey.

5 **THE COURT:** Okay. We will do Dr. Athey after our  
6 second break, so we'll stand in recess until 1:15. Thank you.

7  
8 (Recess taken at 12:33 p.m.; resumed at 1:15 p.m.)

9 **THE COURT:** Okay. We are back on the record. The  
10 record will reflect the parties are present.

11 Counsel, your next witness.

12 **MR. EVEN:** Thank you, Your Honor. Yonatan Even for  
13 Epic Games. Epic Games at this time calls Professor Susan  
14 Athey to the stand.

15 **THE COURT:** All right.

16 **MR. EVEN:** Thank you very much.

17 **THE CLERK:** I will have you stand up and I'll swear  
18 you in.

19 (**SUSAN ATHEY**, called as a witness for the Plaintiff,  
20 having been duly sworn, testified as follows:)

21 **THE WITNESS:** I do.

22 **THE CLERK:** All right. Please be seated.

23 And then if you will get your mask on. If you will adjust  
24 the mic so that it's -- yeah, kind of goes underneath your  
25 shield there.



1 All right. And then please state your full name and spell  
2 your last name. And let me turn on your microphone.

3 **THE WITNESS:** Susan Carleton Athey. It's A-T-H-E-Y.

4 **THE COURT:** Good afternoon.

5 **THE WITNESS:** Good afternoon.

6 **THE COURT:** You may proceed.

7 **MR. EVEN:** Thank you, Your Honor.

8 **DIRECT EXAMINATION**

9 **BY MR. EVEN:**

10 **Q.** Good afternoon, Professor Athey.

11 Before we get into your direct examination, you provided a  
12 written -- a written portion of your testimony in this case?

13 **A.** I have.

14 **MR. EVEN:** Your Honor, may I approach?

15 **THE COURT:** You may.

16 **MR. EVEN:** Thank you, Your Honor.

17 **BY MR. EVEN:**

18 **Q.** Professor Athey, if you turn to the first tab in the  
19 binder I just handed you. And behind it is -- if you can  
20 confirm -- is what seems like a true and correct copy of your  
21 written direct testimony?

22 **A.** It is.

23 **MR. EVEN:** Your Honor, at this time, we ask to move  
24 Professor Athey's direct testimony into evidence.

25 **THE COURT:** All right. The -- any objections or

1 anything -- everything has been resolved; is that correct?

2 **MR. EVEN:** I believe so, Your Honor.

3 **MS. DUNN:** Your Honor, same objection as --

4 **THE CLERK:** Let me turn on the mic.

5 **MS. DUNN:** Your Honor, same objection as yesterday  
6 with Dr. Evans, just to whether there will ultimately be a  
7 factual basis for the opinions. Otherwise, all other issues  
8 have been resolved.

9 **THE COURT:** Okay. Well, then, as with the others,  
10 I'll admit it once we have all these issues resolved.  
11 Otherwise, it does not get admitted yet.

12 Proceed.

13 **MR. EVEN:** Thank you, Your Honor.

14 **BY MR. EVEN:**

15 **Q.** Professor Athey, what is your occupation?

16 **A.** I'm the economics of technology professor at the Stanford  
17 Graduate School of Business.

18 **Q.** Thank you.

19 And have you prepared a demonstrative slide that  
20 summarizes your background?

21 **A.** I have.

22 **MR. EVEN:** If I can bring up that slide. Thank you.

23 **BY MR. EVEN:**

24 **Q.** Can you please describe your educational background.

25 **A.** Yes. I have a bachelor's degree in economics, computer

1 science, and mathematics from Duke University and a Ph.D. in  
2 economics from Stanford.

3 Q. And when did you receive your Ph.D. from Stanford?

4 A. In 1995.

5 Q. How long have you been a professor?

6 A. I've been a professor since then at Harvard, MIT, and  
7 Stanford.

8 Q. And how long have you now been at Stanford?

9 A. Most recently, since 2013.

10 Q. Have you won any awards, Professor Athey?

11 A. I have.

12 Q. Which awards have you won?

13 A. I'm an elected member of the National Academy of Science,  
14 and I've received the John Bates Clark Medal from the American  
15 Economic Association.

16 Q. And what is the John Bates award?

17 A. It's for the economist -- American economist under the age  
18 of 40 who has made the most significant contribution to  
19 thought and knowledge.

20 Q. Do you have a particular area of focus for your research  
21 as a professor?

22 A. Yes. Generally, industrial economics, the economics of  
23 digitization, the economics of platforms and marketplace  
24 design, and the intersection of machine learning and  
25 econometrics.

1 Q. Have you taught any courses related to the economics of  
2 platforms?

3 A. Yes. I've taught a variety of courses to master students  
4 and Ph.Ds and MBAs, including the economics of digitization,  
5 topics in digital business, marketplaces for goods and  
6 services, the economics of digital platform markets.

7 And, broadly, these classes study the forces that --  
8 sources of profits for firms, the tactics that incumbents use,  
9 and strategies that entrants might use to come into these  
10 markets.

11 Q. Thank you.

12 Do you do any work outside of academia?

13 A. I do.

14 Q. And can you please summarize for the Court your  
15 nonacademic work experience.

16 A. Yes. I was consulting chief economist for Microsoft for  
17 several years.

18 After that, I've served on boards of directors for a  
19 variety of companies, including Expedia, which is a platform  
20 for travel services; Rover, which is a platform for  
21 pet-related services, such as dog sitting; Turo, which is a  
22 platform for peer-to-peer car sharing; and some others.

23 I also advise a couple of venture capital firms on their  
24 investments in technology-related businesses.

25 Q. Thank you.

1 I see on the slide at the very bottom, it says "California  
2 Governor's Council of Economic Advisors.

3 What is that?

4 **A.** That's a committee of academic economists who advise the  
5 governor of California on policy issues.

6 **Q.** Have you ever been retained as an economist by any  
7 government agencies?

8 **A.** Yes, I have, by the Department of Justice and the Federal  
9 Trade Commission.

10 **Q.** And have you ever presented to antitrust regulators in the  
11 U.S. or outside of the U.S.?

12 **A.** Yes, in many jurisdictions, including the United States,  
13 Europe, Canada, and others.

14 **Q.** Thank you.

15 **MR. EVEN:** Your Honor, at this time, Epic Games  
16 tenders Professor Susan Athey as an expert in industrial  
17 organization, platform economics, and the economics of  
18 technology.

19 **THE COURT:** Any objection?

20 **MS. DUNN:** No objection.

21 **THE COURT:** She's admitted as such.

22 **MR. EVEN:** Thank you, Your Honor.

23 **BY MR. EVEN:**

24 **Q.** Professor Athey, what have you been asked to do in this  
25 case?

1           **THE WITNESS:** Can you go to the next slide, please.

2           So my assignment was to analyze whether Apple's conduct  
3           affects the competition faced by Apple's smartphone operating  
4           system platform and, further, to consider how middleware  
5           affects competition between mobile platforms and if Apple's  
6           conduct impedes the development of middleware.

7           **BY MR. EVEN:**

8           **Q.** And did you reach any conclusions?

9           **A.** I did. So at a high level, I have three main opinions.

10          The first is that --

11          **THE COURT:** And to the extent you can, we tend not to  
12          read.

13          **THE WITNESS:** Yes.

14          **THE COURT:** Try to just testify.

15          **THE WITNESS:** Thank you.

16          **THE COURT:** Go ahead.

17          **THE WITNESS:** At a high level, switching and mixing  
18          and matching costs are locking consumers in to the iOS  
19          ecosystem.

20          Second, middleware is something that can meaningfully  
21          reduce these costs for both users and developers.

22          And, third, restrictions that are imposed by Apple block  
23          users and developers from using this middleware, and that has  
24          a consequence that Apple can retain its market power over both  
25          users and developers.

1 **BY MR. EVEN:**

2 **Q.** So you start by talking about switching costs, so let's  
3 start with that.

4 **MR. EVEN:** And if we can go to the next slide.

5 **BY MR. EVEN:**

6 **Q.** What are switching costs?

7 **A.** Basically, switching costs are just the costs that you  
8 bear when you leave one platform, like in this case iOS, and  
9 go to a different platform, like Android.

10 **Q.** So let's take a look at the steps that you have here on  
11 the slide, and let's start with the first step.

12 Can you explain the first step that a user switching from  
13 iOS to Android needs to take, as portrayed on the slide.

14 **A.** So, first, a user has been consuming services with their  
15 iOS, and so they are going to need to look and see, for each  
16 of their apps, whether they can find those apps on Android.

17 Now, a typical user has more than a hundred apps, so they  
18 need to determine for each one if they can find them on  
19 Android.

20 **Q.** At the time that the user is considering buying, for  
21 instance, a Samsung Galaxy phone, why wouldn't the user  
22 already know whether their apps are available on Android or  
23 not?

24 **A.** So when they are consuming an app on iOS, Apple's  
25 restrictions prevent the developer from informing the user

1 about what other platforms they might find that app on.

2 So they can't tell just from looking at their apps on  
3 their iPhone where else they might be able to find that, in  
4 particular, in this case, Android.

5 **Q.** Going to the next step, you talk about identifying  
6 alternatives.

7 What are you referring to in that step?

8 **A.** So not every app that they have on iOS might be available  
9 on an Android. And so if there is an app that is not  
10 available on Android, they would need to do the research to  
11 figure out which new app they might buy.

12 Now, they've already made a purchase and own that app on  
13 iOS, so they're going to be incurring a new cost to receive  
14 similar services. They will need to compare and determine  
15 which app provides similar functionality and do a cost-benefit  
16 analysis for their new purchase.

17 **Q.** And can you provide the Court with an example of an app  
18 that exists on iOS but doesn't exist on Android, for  
19 example?

20 **A.** Yes. So one example is the Moleskine Flow, and this is an  
21 app that students might use to take notes or draw figures or  
22 diagrams in class. And this app is available on the iOS,  
23 but it's not available on Android.

24 **Q.** Turning to the third step on this slide, you talk about  
25 purchase, repurchase, and reinstall. So let's take these one



1 by one.

2 What do you mean by "purchase."

3 **A.** Well, so when you are buying a different app to replace  
4 the functionality, then you need to buy it. That's the  
5 purchase.

6 **Q.** And what do you mean by "repurchase"?

7 **A.** So for other apps, you've purchased it on the iOS, but  
8 if you -- even if the same app is available on Android, you  
9 would need to purchase it again, pay that same price or  
10 similar price for that app on Android, even though you already  
11 bought it on iOS.

12 So an example like that would be *Minecraft*. *Minecraft* is  
13 a game where you pay before you download it. If you had done  
14 that, say paid 6.99 on iOS and purchased it, you own it on  
15 iOS. If you go to Android and you want *Minecraft*, you will  
16 pay 6.99 again to have the game on Android.

17 **Q.** Then you mentioned reinstalling or installing.

18 Which apps would you need to reinstall on the Android  
19 device?

20 **A.** All of them.

21 **Q.** Let's go to the last step, "Transfer of app-related data."

22 What is that referring to?

23 **A.** Well, so in some cases, transferring app-related data  
24 might not be possible. So with Moleskine, I have a library of  
25 notes and drawings and sketches that I made while taking notes

1 in class, and so given that I won't have Moleskine, I can't  
2 transfer that data.

3 But for other apps, you might have in-app purchases. You  
4 might have made progress, settings, customized it to your own  
5 experience. If you are in a game, you might have progressed  
6 through levels or spent time earning yourself up. And that's  
7 the kind of data that could be transferred if possible.

8 **Q.** What if you were buying a subscription -- and I apologize  
9 for the East Coast example -- but let's say I have *The New*  
10 *York Times* subscription that I bought through the App Store on  
11 my iPhone.

12 What happens to that subscription if I want to switch to a  
13 Galaxy phone from Samsung?

14 **A.** So if I purchased that subscription on my iPhone, I need  
15 to continue to manage that subscription through Apple, even  
16 though I no longer have an Apple device to manage the  
17 subscription.

18 So I might need to find a different device and go to the  
19 website, for example, and log in to Apple. If I needed to  
20 update my credit card or, say, add a feature, some extra  
21 payment for, I don't know, a crossword puzzle, something like  
22 that, on the *New York Times*, I would need to still go back to  
23 Apple to manage that, even though I now have an Android device  
24 and that's where I'm using it.

25 **THE COURT:** Really? I thought you could just go --

1 well, I guess I don't know Androids, but if it went the other  
2 way, I thought all these subscription services just asked you  
3 to put in your I.D. number, your password, and then it was  
4 accessible.

5 **THE WITNESS:** So that depends on which kind of  
6 service and what kind of account management system the app has  
7 created.

8 So you might be thinking of an experience like *Netflix*,  
9 where you've signed up for *Netflix*, say through a browser, and  
10 then when you log in to *Netflix* on the Android or the  
11 iPhone --

12 **THE COURT:** I'm talking about *The New York Times*.

13 **THE WITNESS:** -- you can get that.

14 But so for the *New York Times*, you might have bought the  
15 subscription in different ways. So if you bought it  
16 originally through the web, then the *New York Times* is  
17 managing your subscription.

18 And so you've entered your payment details with *The New*  
19 *York Times*, and then you could -- say you bought it a long  
20 time ago on the web and now you want to use it on Android, you  
21 would then authenticate that way.

22 But if you purchase a subscription through Apple, then  
23 Apple has the payment information, and Apple's restrictions  
24 would require, for example, that only Apple could provide a  
25 refund or, you know, any other services around that payment.

1           So if you didn't have a computer, for example, or you  
2           didn't have easy access to one, then what you might want to do  
3           is instead manage it through an Android app. At that point,  
4           you would go to the Apple website. When the subscription runs  
5           out, you can cancel the subscription there and then create a  
6           new subscription a different way.

7                   **THE COURT:** I see. Thank you.

8           **BY MR. EVEN:**

9           **Q.** Looking at the four steps that you've just laid out on  
10          this slide, Professor Athey, how does this process compare to  
11          the replacement of an older iPhone with a newer iPhone?

12          **A.** It's very different. If you upgrade to a new iPhone, all  
13          of your apps automatically install and the app-related data is  
14          automatically passed over in almost every case.

15          So you pick up your new iPhone, the apps are installed.  
16          You haven't had to search for any of them. Your app-related  
17          data would also be transferred, your subscriptions, and so you  
18          would just pick up right where you left off with the new  
19          phone.

20          **Q.** Thank you.

21          I believe in your conclusions, you also mentioned  
22          something that you referred to as "mixing and matching costs."

23          What are mixing and matching costs?

24          **A.** Yes.

25                   **THE WITNESS:** Can we go to the next slide, please.

1           So, broadly, this is just the cost to users of accessing  
2       apps and services on multiple devices with incompatible  
3       operating systems.

4       **BY MR. EVEN:**

5       **Q.** And could you explain what you show in this scenario on  
6       the slide here as it relates to mixing and matching costs?

7       **A.** Sure. So at different times of day, you're going to have  
8       access to different devices or different devices may be more  
9       convenient to you or, you know, devices may be shared within a  
10      family, so you don't always have access to the same device.

11           So if you were in the park in the morning, you might have  
12      access to an iPhone. At a different time of day, say in the  
13      afternoon, you might be doing productivity-related activities,  
14      say on a laptop with a larger screen and a keyboard, where you  
15      can input information. And then at night before bed, you  
16      might want a medium-size screen to read a book with larger  
17      print or to watch a show.

18           So you'll be actively engaged with different devices for  
19      different reasons, but you still might like to have access to  
20      things like communications or apps that -- where you might  
21      need to access information that had shared data, et cetera, at  
22      these different places.

23           And so the mixing and matching costs here would be the  
24      costs associated with trying to access those from different  
25      platforms.

1 Q. So can you speak to the bullet points on the right? What  
2 are the costs that you have identified here?

3 A. Well, so just for example, suppose that I have an iPhone  
4 and I'm considering using a cheaper Android tablet for my  
5 evening videos. If I wanted to also be able to, you know,  
6 access communications or things like that, then I would need  
7 to think about identifying and locating cross-platform apps,  
8 apps that would work across the iOS and Android.

9 And if I wanted any services on both of them, I would need  
10 to repurchase apps as I described before. So similar to the  
11 switching scenario, but now I'm using different device types.

12 Q. So you mentioned that this can happen within families.  
13 Have you prepared a slide explaining what are mixing and  
14 matching costs within a family?

15 A. Yeah, so families are a very common example. There's  
16 other groups where this occurs too.

17 And in this kind of scenario, a family might acquire  
18 different devices over time, so you might start out a parent  
19 has a personal phone. Maybe they have started out with an  
20 iPhone. There are scenarios where they have their iPhone  
21 conveniently with them while they are waiting with their  
22 child, and so they start buying apps for that child to use in  
23 scenarios like that. And so they accumulate a set of games  
24 for their kid on their iPhone.

25 Now, later they might decide they want also a tablet for

1 the family to share. If they were considering getting a  
2 low-cost tablet, they would have to then contemplate the same  
3 kinds of switching costs or mixing and matching costs I  
4 previously described. They would need to contemplate whether  
5 they were going to purchase -- repurchase apps or stay within  
6 the ecosystem.

7 So suppose they bought an iPad. They could then bring  
8 over the apps that they had already purchased on the iPhone  
9 through family sharing, so they wouldn't have to repurchase  
10 the apps in that case. But they might buy some additional  
11 games, so maybe they buy a subscription to *Minecraft* on the  
12 family tablet.

13 Now later again, they might contemplate, as a child grows,  
14 buying them their first phone, a phone to have available  
15 for -- whether it's a Zoom call to school or, you know,  
16 calling when they need to be picked up from an activity.

17 But if they wanted to buy a low-cost Android device,  
18 again, worried they might lose it, crack the screen, don't  
19 think you should be spending, you know, as much money on a  
20 child's phone, instead of just being able to consider the cost  
21 of the device, they would also have to consider the cost of  
22 repurchasing apps that had already been accumulated.

23 And so in that way, the -- you have a disincentive to  
24 switch as you accumulate devices within a family.

25 Q. So I think you covered the third -- three points.

1 You also mention here on the slide "parental controls."

2 What are you referring to there?

3 **A.** So in this scenario, of course, many parents want to limit  
4 the screen time of their children and they also want to make  
5 sure they are not exposed to inappropriate content.

6 So they might -- in the scenario where they had the iPhone  
7 and the iPad, they might be using parental controls from  
8 Apple. But if they went to add a device outside, they would  
9 need to search for an app that would allow them to manage  
10 cross-platform and, again, potentially purchase that.

11 **Q.** And can they search for an app that works cross-platform  
12 on the Apple App Store?

13 **A.** No. That information is not allowed to be shared with  
14 consumers, so when you are searching for those apps, the apps  
15 can't advertise what other platforms they might be on.

16 And so when making that original purchase, you might not  
17 have focused on the fact -- or adopt- -- making your initial  
18 adoption decision, you might not have focused on the fact that  
19 it wouldn't provide you that cross-platform functionality, and  
20 it would be difficult to know that.

21 **MS. DUNN:** Objection, Your Honor. Move to strike.  
22 That's an opinion that was not disclosed in Dr. Athey's  
23 report.

24 **THE COURT:** So what paragraph of your report is it?  
25 Can I find it if it's there?



1           **MR. EVEN:** I believe it's in paragraph 31 of the  
2 written direct, which was stipulated to. I can go back and  
3 find it in the report itself, but...

4           **THE COURT:** I'm looking at paragraph 31. You mean of  
5 the written or of the direct testimony?

6           **MR. EVEN:** Of the written direct testimony. In the  
7 middle --

8           **THE COURT:** Let me read, Counsel.

9           Is there a dispute that Apple prohibits advertising of  
10 cross-platform apps? Ms. Dunn, is there a dispute?

11           **MS. DUNN:** Your Honor, no, but this witness has not  
12 disclosed any opinions on that topic.

13           **THE COURT:** Overruled. I think it's within the  
14 confines of 31, especially given there is no dispute.

15           Proceed.

16           **MR. EVEN:** Thank you, Your Honor.

17           **BY MR. EVEN:**

18           **Q.** So I want to switch a little bit. You've talked a little  
19 bit about the cost to the users. Obviously, the Court has  
20 heard a lot about how these markets have two sides to them.

21           And my question to you is, wouldn't the developers go out  
22 of their way to solve these problems for the users?

23           **A.** The developers have a strong incentive to try to solve  
24 these problems for consumers.

25           **THE WITNESS:** Can we go to the next slide, please.

1           So the reason a developer cares so much about this is that  
2           the more the user can consume their services, the more value  
3           the consumer gets from them. So if they can access the app  
4           both, you know, in the park and in bed at night, that's going  
5           to create more value for the developer.

6           And if the developer can maintain a relationship with the  
7           user, that -- that's also beneficial for the developer. So  
8           the developer wants to make it easy for their relationship to  
9           go with the user wherever the user wants to go.

10       **BY MR. EVEN:**

11       **Q.** And so what is the impediment to that? And maybe let's  
12       talk about the first two that you were alluding to on the  
13       slide.

14       **A.** Well, so the developer faces costs to making this happen.

15           So the first thing is that if the developer wants to  
16           maintain a relationship with the user, they need an account  
17           management infrastructure. So they need, basically, a  
18           database that helps them keep track of who the users are.

19           And they also need a payment infrastructure -- a  
20           cross-platform payment infrastructure that will allow them to  
21           make sure that things that a user has bought in one place  
22           would be available in a different place.

23           Now, those things are costly. Large developers would have  
24           the scale economies, in principle, to justify the costs, but  
25           smaller developers often wouldn't build those.

1 Q. So going to the third point in your slide about reduction  
2 in engagement, what might cause reduction in engagement for  
3 the developer?

4 A. Well, so it's a pain to create an account and come up with  
5 a new password. And if you're looking at an application,  
6 considering it, and you haven't used it yet, you're not sure  
7 what the value is going to be, a user might not want to bother  
8 with going through this hassle of, you know, one more account.  
9 And so in practice, that can really get in the way of an  
10 application incentivizing the user to do it.

11 So putting those two things together, the infrastructure  
12 is costly to build, which may not be economical for midsize or  
13 smaller apps, and the fact that it's difficult to get the  
14 consumers to do it, you see that even though they would like  
15 it, small and midsize apps would typically not do this, even  
16 some larger apps.

17 Q. Going to the last point, "No one-stop shop," what are you  
18 referring to on that?

19 A. Well, the developers, all else equal, want to make things  
20 easy for users. But the problem that I described the user was  
21 facing was not just bringing over one app from one platform to  
22 the next, but bringing over all of the apps. It's a big  
23 collection of apps.

24 And so it's the sum of all of those frictions across lots  
25 of apps, passwords, accounts, that friction, that can be an

1       impediment to someone to switching.

2           And so solving that problem for a collection of apps is  
3       not something that a single developer can solve, even though  
4       they wish it was there.

5       **Q.** Do developer also incur any costs simply for trying to  
6       operate their apps on different platforms, on both iOS and  
7       Android in this case?

8       **A.** Yes.

9           So we go to the next slide, please.

10          So we've just been talking about costs to a developer from  
11       trying to provide services to their users across two platforms  
12       like iOS and Android.

13          To provide their services across two platforms, the  
14       developers also have to port the code. Different code runs  
15       on iOS and Android, and it's costly to create that  
16       additional code base. So those are called porting costs.

17       **BY MR. EVEN:**

18       **Q.** And so given these porting costs, can you explain why is  
19       it that we still find many, many apps across both iOS and  
20       Android?

21       **A.** So a developer is going to consider the costs and benefits  
22       from porting.

23          For big, mature, established platforms like iOS and  
24       Android, there are lots of consumers there. So, in general,  
25       the benefits of porting your code are outweighed -- are higher

1 than the cost of doing the porting.

2 So today, you know, most important apps are on both  
3 platforms and multihoming is common. But those costs that --  
4 we'll see a very different scenario when thinking about an  
5 entering platform.

6 So an entering platform is going to face what's widely  
7 known as the chicken and egg problem. So the chicken and egg  
8 problem is that a developer doesn't want to bother porting  
9 their code to a platform without many users, but a user  
10 doesn't want to go to a new platform without many developers.

11 So the porting costs lead to the app barrier to entry,  
12 which is widely understood to be the barrier in this type of  
13 market, and in particular, that app barrier to entry supports  
14 the high profits that otherwise we would expect would invite  
15 entry.

16 **Q.** So trying to summarize a little bit, you talked about  
17 switching costs, you talked about mixing and matching costs,  
18 you talked about cross-platform management costs, and then you  
19 talked about cross-platform porting costs.

20 In your opinion, how do these costs, in the aggregate,  
21 impact competition between iOS and Android?

22 **A.** So in my opinion, they stifle competition between iOS  
23 and Android. So we're talking about a scenario where we have  
24 a stable duopoly where most users are already locked in and  
25 where even the few new arriving users, like children coming of

1 age, are already going to be influenced by the platform  
2 purchases of their parents.

3 So in this environment with locked-in consumers, we have a  
4 scenario where the platforms are adding additional frictions  
5 to an environment where we already expected to have -- to have  
6 switching costs. And these additional costs create --  
7 maintain market power over both users and developers.

8 So from the user perspective, the fact that you have these  
9 switching costs means that you're going to be less sensitive  
10 to low prices or new features that a platform introduces. You  
11 know, as your needs change over time, you might want to switch  
12 platforms and you might be attracted by a feature that meets  
13 your needs, but the switching costs impede the consumer's  
14 response to that and also thus create less incentive for firms  
15 to create them.

16 On the developer side, thinking from that perspective,  
17 it's exactly locked-in consumers that creates the market power  
18 over developers. The developers understand that even a  
19 popular developer can't induce consumers to switch platforms  
20 just to get that app and, as a result, an increase in consumer  
21 switching costs will increase the market power the platform  
22 can exert over developers.

23 Q. Thank you.

24 Do you understand that some of the Apple experts in this  
25 case have criticized you for not ruling out the possibility

1 that switching costs in this case are, in fact,  
2 procompetitive?

3 **A.** Yes.

4 **THE WITNESS:** Excuse me. Your Honor, the screen  
5 seems to have gone blank.

6 **THE COURT:** It may have. I'm not -- I don't control  
7 that.

8 **THE WITNESS:** Yeah, sorry. Yes. Thank you.

9 Yes, I'm aware.

10 **BY MR. EVEN:**

11 **Q.** And do you agree with that criticism?

12 **A.** No.

13 **Q.** And can you very briefly explain why you disagree with  
14 that criticism?

15 **A.** So the consensus of economists is that when you see a  
16 setting where firms choose to impose additional switching  
17 costs, artificial switching costs that create real costs for  
18 consumers, they are doing that in pursuit of profits. That's  
19 why they choose to do so, for example, with high prices. And  
20 that can be harmful for consumers.

21 Now, the papers cited by Apple are consistent with that,  
22 that now they -- in different settings, there can be edge  
23 cases, cases in dynamic markets with, for example, entry or  
24 frequent switching where the primary focus of competition is  
25 new users and that's what's driving firm decisions. In that

1 case, introductory discounts can become a locus of  
2 competition.

3 But that's the exact opposite of the case we have here,  
4 where there are already high switching costs. We don't see a  
5 lot of switching, and the locus of competition on new users is  
6 small and the incentives are shaped by the existing users.

7 **Q.** Thank you.

8 So I would like to switch gears a little bit and turn to  
9 your second conclusion that had to do with the effects or  
10 potential effects of middleware.

11 And just to level set, what are you referring to when you  
12 are talking about middleware?

13 **A.** So middleware is technology that facilitates users and  
14 developers interacting across different platforms, reducing  
15 costs such as the switching and mixing and matching costs or  
16 porting costs that we have been discussing.

17 **Q.** So is middleware a well-understood concept in the area of  
18 industrial economics?

19 **A.** Yes, it's a well-understood concept. When you say  
20 "middleware" in economics, it's most closely associated with  
21 the Microsoft antitrust case.

22 So the concept in that case centered around the idea that  
23 middleware such as browsers could facilitate users and  
24 developers interacting across platforms.

25 For example, if a user with -- on one of the incumbent



1 platforms was using the web on their browser, say, on Windows,  
2 the fact that they could also consume those apps through a  
3 browser on an entering platform would reduce the barriers to  
4 entry due to the chicken and egg problem.

5 From the developer side, because the developers could  
6 create experiences through the browser, the developers were  
7 willing to incur the cost of meeting the consumers on the  
8 incumbent platform through the browser, but then they wouldn't  
9 incur porting costs if the consumers went to a new platform.

10 So middleware has this prominent role as something -- one  
11 of the things that can help a new entrant overcome the app  
12 barrier to entry, and it thus plays a central role in platform  
13 competition.

14 So that's exactly the concept as I'm using it here. It's  
15 a different technology today than in the '90s, but the  
16 economic consequences and concept are the same.

17 **Q.** So can you provide some examples of middleware that you  
18 think are relevant to this case?

19 **A.** So two types of middleware I focused on. One is  
20 cross-platform app stores and the other are app streaming  
21 platforms.

22 **Q.** So let's start with cross-platform app stores.

23 You mentioned -- strike that.

24 Can you -- maybe let's just start from the basics. What  
25 do you mean by "cross-platform app store"?

1       **A.**    Sure.

2               **THE WITNESS:**   The next slide, please.

3               So cross-platform app stores operate across multiple  
4       platforms, and therefore they allow users to migrate and  
5       synchronize their apps on all of those platforms, which has  
6       the benefit of reducing the switching and mixing and matching  
7       costs we talked about earlier. The cross-platform app stores  
8       can provide some or all of the services to help mitigate  
9       those.

10       **BY MR. EVEN:**

11       **Q.**    So when you talk about cross-platform app stores, just so  
12       we all understand what that's all about, how would that  
13       actually work in reality? What would a cross-platform app  
14       store allow a user to do when they switch from an iOS phone  
15       to an Android phone?

16       **A.**    So a cross-platform app store ideally would make it almost  
17       as easy as upgrading your iPhone today. So you -- going from  
18       iPhone to Android, you would need to download --

19               **THE COURT:**   Just --

20               **THE WITNESS:**   I'm sorry.

21               **THE COURT:**   I'm going interrupt and then you can  
22       finish off.

23               Is this the same thing, back to our *New York Times*  
24       example, as if I had gone to *The New York Times*, gotten my  
25       subscription directly from them, and then I could use it on

1 any device that I wanted?

2 **THE WITNESS:** That would be one benefit, yes.

3 **THE COURT:** But not just a benefit, that's an  
4 alternative mechanism to get the same result, correct?

5 **THE WITNESS:** For a single app, yes.

6 **THE COURT:** So one of the problems is that on the  
7 Android and the iPhone, *The New York Times* can't tell them,  
8 Hey, go and sign up on our website and then you can have  
9 access across devices.

10 **THE WITNESS:** Yes.

11 **THE COURT:** Okay. So if they did that, then there  
12 wouldn't really be the same kind of need for this  
13 cross-platform app store that you're talking about.

14 **THE WITNESS:** I think it -- that would be a big  
15 benefit, I agree, that you could alert people to the most  
16 efficient way to pay. And if people valued cross-platform  
17 access, that would be a benefit. And if consumers understood  
18 that, they would need to do it.

19 Consumers do get clutzy and disconnected and sensitive to  
20 delays when trying to complete that type of activity, and so  
21 making it easy, you know, being able to also, you know, get  
22 there quickly would be helpful. But yes.

23 **THE COURT:** That would be, one, their choice, and,  
24 two, because there are lots of various considerations in  
25 antitrust law, that would be an alternative solution.

1           **THE WITNESS:** To the problem of a single app. And so  
2           that would be helpful, I think, especially for the largest  
3           apps. So the --

4           **THE COURT:** Proceed.

5           **BY MR. EVEN:**

6           **Q.** So just to pick up on the Court's question, how -- you say  
7           it would solve the problem for a single app.

8           Would that solve the problem for the -- what we refer to  
9           as the one-stop shop problem?

10          **A.** No. So smaller and midsize apps, apps where the consumer  
11          may be uncertain about the value that they are going to get,  
12          would still find it difficult to induce consumers to go and  
13          create those accounts.

14          And then, again, from the competition perspective, what's  
15          important is the sort of aggregate switching costs the  
16          consumer perceives. So, you know, even if there was  
17          cross-platform app store, a consumer might still be willing to  
18          separately log in to *Netflix*, you know. They are excited  
19          about their show and, you know, they are going to get to the  
20          next episode.

21          But they -- that would be -- it wouldn't solve the problem  
22          for imagining figuring out all of your accounts and  
23          successfully getting them over to there across a hundred apps.

24          **MS. DUNN:** Objection, Your Honor. I'm happy just to  
25          state this for the record, because I think it's included in

1 the prior objection, but there is a lot of testimony about  
2 what consumers want and what consumers do. So for these  
3 purposes, we would just note that for the record.

4 **THE COURT:** Well, again, Ms. Dunn, with respect to  
5 the last objection, it didn't seem to me that there was any  
6 dispute, so I didn't mind it.

7 Is what you are saying is that there is no evidence in the  
8 record with respect to the consumers' perspective? I haven't  
9 memorized all these expert reports.

10 **MS. DUNN:** I understand, Your Honor, and that's why I  
11 wanted to flag for the Court.

12 Dr. Athey has testified quite a lot, subject to our  
13 original objection, about what consumers think, what they  
14 believe, what they are doing, and there's not evidence in the  
15 record as to that and we don't believe there will be. So it  
16 is covered by the original objection, but it's happened so  
17 much I just wanted to note it for the record.

18 **THE COURT:** Well, have you done any survey evidence  
19 or research with respect to consumer actions, and, if so, can  
20 you point me to it in your direct testimony?

21 **THE WITNESS:** So the number of apps, for example --

22 **THE COURT:** Limited to your testimony.

23 **THE WITNESS:** I'm sorry. So I did not conduct an  
24 original survey of consumers, if that was the first question.

25 The facts about consumers --

1           **MR. EVEN:** Your Honor, if I may?

2           **THE COURT:** No.

3           **THE WITNESS:** Okay. I want -- I'm going to try to --  
4 I'll do my best to answer the question.

5           **THE COURT:** You have your direct testimony in front  
6 of you.

7           **THE WITNESS:** Yes, yes.

8           **THE COURT:** It's in your binder.

9           **THE WITNESS:** Okay. Thank you.

10          **THE COURT:** I don't expect you to memorize the  
11 paragraphs either. I had a law professor who could do that,  
12 but he was --

13          **THE WITNESS:** Not me, no.

14          **THE COURT:** And the question is, is there anything in  
15 the direct testimony regarding consumer habits?

16          **THE WITNESS:** Thank you.

17          **THE COURT:** We can do it another way so that the  
18 clock is not ticking.

19          **THE WITNESS:** Sure. Yes.

20          **THE COURT:** The testimony with respect to consumer  
21 habits is stricken except that which exists in the direct  
22 testimony. All right?

23          Let's proceed.

24          **MR. EVEN:** Okay.

25

1 **BY MR. EVEN:**

2 **Q.** Professor Athey, is research into consumers' preferences  
3 and consumer behavior in the space of technology something  
4 that you research in your day-to-day --

5 **THE COURT:** It doesn't matter if she does or not. If  
6 it's not in the report and wasn't disclosed, it is not  
7 properly in front of the Court.

8 **MR. EVEN:** Oh, okay. So I'm sorry, Your Honor, maybe  
9 I misunderstood. If the objection is outside the scope, we  
10 can address that separately. That's an easy objection. I  
11 don't think -- I don't think that's what the objection was. I  
12 thought the objection was that there isn't a basis for her  
13 opinions, which --

14 **THE COURT:** I understood it to be outside the scope.

15 **MR. EVEN:** Okay.

16 **MS. DUNN:** There's two objections here.

17 One is she is testifying outside the scope.

18 The second is she -- there is no basis for the assertions  
19 about what consumers do and think. And there's quite a lot of  
20 this, and it is not going to be proven up by the factual  
21 record --

22 **THE COURT:** That's --

23 **MS. DUNN:** -- nor is it --

24 **THE COURT:** That's why I said it's outside the scope.

25 So --

1           **MS. DUNN:** Thank you, Your Honor.

2           **THE COURT:** -- again, the testimony is stricken  
3 except to the extent that it is in the report. I'm not -- she  
4 couldn't find it quickly. I want to keep moving. It doesn't  
5 sound like it's in the report.

6           But go ahead.

7           **MR. EVEN:** Your Honor, I just want to make sure that  
8 the record is clear to me as to what it is that we are  
9 supposed to show.

10          The testimony that Professor Athey is providing about  
11 users' switching costs, mixing and matching costs, and whether  
12 they want to do something or not is all in the report.

13          **THE COURT:** Correct. And that's fine. It's in the  
14 report.

15          **MR. EVEN:** Okay. So what is it that -- I'm not  
16 entirely sure -- what is it that we are currently missing?

17          If there is a question about a survey, I think Professor  
18 Athey answered that, and I can lay foundation as to why she  
19 has general 703 basis to attest to what consumers face and  
20 don't face and how consumers behave more generally.

21          **THE COURT:** If you want to go back to the report and  
22 use your time that way, that's fine. I can tell you that when  
23 I read her report, I had lots of questions on this document  
24 about the factual basis for the opinions, and I am trusting  
25 that to the extent there is something there, you will all give



1       it to me.

2               **MR. EVEN:**   Okay.

3               **THE COURT:**   Because you all know your case better  
4       still, having lived with it for ten months, than I do.   If  
5       there is not a factual basis, I will not consider it and  
6       it's -- and it will ultimately be stricken.

7               But as I understood it, you all were still negotiating  
8       over whether the factual basis is ever proved up in some of  
9       these expert reports.   So I'm relying, in part, on you all.

10              **MR. EVEN:**   And I appreciate that, Your Honor.   I'm  
11       just not sure what is the factual basis that we want now,  
12       other than Professor Athey's general assessment as a professor  
13       of technology and economics, as to the incentives and what  
14       consumers may or may not do facing these incentives.   That's  
15       clearly in the report, Your Honor.

16              **THE COURT:**   Then if it is in the report, you're all  
17       good.

18              **MR. EVEN:**   Okay.

19              **THE COURT:**   And I should say and it's still subject  
20       to your ongoing negotiations about the factual basis.

21              **MR. EVEN:**   I understand, Your Honor.   I just want to  
22       make sure that I understand the objection, because my  
23       understanding is that somebody who researches what consumers  
24       and technology firms do for a living can come into court and  
25       testify to that based on their expertise.

1           **THE COURT:** They can testify as to what they have  
2 disclosed.

3           **MR. EVEN:** Absolutely, Your Honor. I don't really  
4 think there is a disclosure issue here, but that's okay. I  
5 appreciate that. I'll move on.

6 **BY MR. EVEN:**

7 **Q.** Professor Athey, do you have any examples -- let me take a  
8 step back.

9           Obviously, we don't have a cross-platform app store right  
10 now, correct?

11 **A.** Yes, correct.

12 **Q.** And so have you seen any examples of a cross-platform  
13 store that sells something other than apps?

14 **A.** Yes. So going back in history, when you used to watch  
15 movies and shows on the iPhone, you would purchase individual  
16 movies on iTunes, but you could watch those on -- in the iOS  
17 system.

18           Today, there are services like *Amazon Prime Video* or  
19 *Netflix*. *Amazon Prime Video* at the beginning offered the same  
20 kind of service to iTunes except you would buy movies or shows  
21 one at a time, but it was cross-platform and so people could  
22 buy on one device and move to another. And that type of --  
23 that type of cross-platform experience is also -- is an  
24 example.

25           Now, that's allowed, so *Netflix* and *Amazon Prime Video* are

1 allowed, but other types are not.

2 Q. Okay. Have you found any examples of cross-platform app  
3 stores that are outside of iOS?

4 A. I have.

5 Q. And can you give the Court an example or two?

6 A. Yes.

7 THE WITNESS: So next slide, please.

8 So one example of a cross-platform app store is the Epic  
9 Games Store. This is a store that's available on the Windows  
10 PC and the macOS.

11 BY MR. EVEN:

12 Q. And can you speak to the cross-platform benefits provided  
13 to users and developers by the Epic Games Store.

14 A. Yes. So the Epic Games Store builds the infrastructure I  
15 described earlier that makes it possible for developers to  
16 interact with their users through an account that would be  
17 available across all devices.

18 So in the case of the Epic Games Store, the user has an  
19 account with the Epic Games Store that allows them to access  
20 their library of apps and have them easily available across  
21 any platform that they choose to use.

22 Another service provided by the Epic Games Store is a  
23 cloud service that, again, makes it possible for developers to  
24 sync the users' data, app-related data, their purchases, what  
25 levels they are at, across platforms.

1           So if you went -- if you decided to switch from Windows PC  
2           to macOS, what you would do is you would just log in to the  
3           Epic Games Store and you could pick back up right where you  
4           left off.

5           There would also be a wallet service. So if you had  
6           entered your payment information when you had a PC, that would  
7           also be available on the macOS, so just pick right up where  
8           you left off.

9           **Q.** Got it. Thank you.

10          Now, you mentioned that the Epic Games Store is available  
11          on the macOS.

12          How does the Epic Games Store compare, for instance, to  
13          the Mac Apple App Store that's on Mac?

14          **A.** It provides a similar set of services except that if you  
15          buy things through the macOS store, they are locked into the  
16          Apple ecosystem. You can't use them across.

17          **Q.** You also -- do you have another example of cross-platform  
18          app store outside of iOS?

19          **A.** Yes.

20                 **THE WITNESS:** So the next slide.

21                 **BY MR. EVEN:**

22          **Q.** So I see this is about Steam. Where is Steam available?

23          **A.** Steam is available on the Windows PC, the macOS, as well  
24          as Linux PC.

25          **Q.** And what services does the Steam store provide to users

1 and developers so that they can work and transact across  
2 platforms?

3 **A.** So it provides the infrastructure so that users and  
4 developers can interact in a similar way to what I just  
5 described. It provides services for account management,  
6 allowing the user to access a library cloud and wallet.

7 It also has an additional service, family sharing, where  
8 users can share apps and purchases across platforms within a  
9 family. So if one kid has a Windows PC, the other has to  
10 switch to, you know, Apple to be compatible with school, they  
11 can -- you know, they can share their apps and purchases in  
12 that way.

13 **Q.** All right. So let's switch gears for a second. You  
14 mentioned also streaming services. The Court has already  
15 heard testimony about streaming services some, but can you  
16 explain at a very high level, how would an app streaming  
17 service operate?

18 **A.** Yes.

19 **THE WITNESS:** Next slide, please.

20 So this would feel a lot like a *Netflix* experience today  
21 from a user's perspective. They would be able to access a  
22 wide variety of content. They could easily switch between  
23 different types of content, try things out.

24 And then, from the developer perspective, it's a very  
25 different experience than regular apps because the developer

1 is writing code that runs on servers in the cloud.

2 So the developer's code is written to the cloud, and they  
3 don't -- just like a movie producer can make a movie and not  
4 worry about where people are going to watch the movie, a game  
5 developer could develop once and then that game would be  
6 available on, you know, any platform, and they wouldn't have  
7 to worry about, say, you know, porting to a new or smaller  
8 platform.

9 **Q.** Thank you.

10 Are streaming services limited to games?

11 **A.** No.

12 **Q.** What other use cases could there be for app streaming  
13 services?

14 **A.** So these are nascent, I should say, and so they are coming  
15 into -- so they are coming into play as a result of costs and  
16 benefits.

17 What we see with games today is that they struggle with  
18 some latency challenges. There can be delays, so you need  
19 high bandwidth; but on the other hand, they can provide an  
20 immersive experience even on a device that is lower cost.

21 So taking those economic characteristics, there can be  
22 many other applications that would also benefit from being  
23 able to allow an immersive experience to be available on  
24 lower-cost devices.

25 A situation where you might want to -- need to reach a lot

1 of people, say, on -- your cheap devices might be an  
2 educational or a training experience, where, you know, it's  
3 important that the student understand the physical  
4 environment.

5 And so they want to have an immersive video experience  
6 that's interactive, but you want to reach low-wage workers or  
7 students with, you know, six-year-old hand-me-down phones.  
8 And so you want to provide that experience on a low-cost  
9 device.

10 So the general themes that we've heard about in terms of  
11 games have analogs in other industries, but it's still very  
12 early days.

13 **Q.** So you mentioned now that it's nascent, that it's in early  
14 days. Can app streaming services solve switching and mixing  
15 and matching costs today?

16 **A.** No. They are not big enough.

17 But, you know, the -- one of the big constraints has been  
18 bandwidth. And so if you think about a longer time horizon,  
19 five to ten years, you know, we are trying to make a lot of  
20 investments now to get bandwidth out there and more available.  
21 The technology is improving. And so some of the constraints  
22 that have held it back could -- are expected to alleviate.

23 And so, you know, just like *Netflix* has transformed the  
24 way that content is produced and consumed in movies and shows,  
25 it could make a big difference. And the bigger difference it

1 makes, the bigger impact it would have on mobile competition.

2 Q. Thank you.

3 Do iOS users currently have access to streaming  
4 platforms?

5 A. Not in the way they are intended, no.

6 Q. And what do you mean by "not in the way they are  
7 intended"?

8 A. Well, so some of the big benefits are that, you know, you  
9 can have one app, similar to the *Netflix* app, and have lots  
10 of -- access lots of different things seamlessly from a user  
11 perspective.

12 But the Apple App Store restrictions require that in order  
13 to offer multiple streaming games, it's necessary to -- for  
14 the user to download a separate app.

15 So even though the separate app wouldn't have any  
16 additional functionality, there would be an additional app for  
17 each game.

18 Q. What would a similar policy mean for something like  
19 *Netflix*, for instance?

20 A. That would mean that for every movie or show that I wanted  
21 to watch, I would need to download a separate app. And if I  
22 wanted to switch between one movie and another, I would need  
23 to navigate to and switch to that separate app.

24 Q. Thank you.

25 You talked earlier about entry and some of the barriers to



1 entry and chicken and egg problem.

2 How would app streaming platforms affect, potentially --  
3 if they come to -- become more mature, how could they affect  
4 entry in this space?

5 **A.** So remember, the chicken and egg problems arises because  
6 consumers don't want to use a device where there is not enough  
7 services.

8 But -- so if a consumer can go to a new platform and have  
9 access to multiple services, that makes it easier to reap the  
10 benefits of a low-cost device.

11 And so you could buy a low-cost device and then with a  
12 single app, you would be able to access this library of  
13 content, which would already be there because the developers  
14 wouldn't bear any porting costs. So as long as the streaming  
15 service has got the streaming app on the new platform, just  
16 one app needs to port, then the consumer suddenly would have a  
17 library of content.

18 So if you thought about getting a low-cost tablet for your  
19 child, imagine that it had, you know, *Amazon Prime Video* and a  
20 game-streaming app, you know, and a browser. Well, you know,  
21 that might be good enough for your kid. And so you could --  
22 it would be rational for people to buy a low-cost tablet like  
23 that for their child.

24 The more people bought low-cost tablets for their kids or  
25 themselves, the more users there would be, and that could, in

1 turn, induce additional entry.

2 **THE COURT:** Do you still think we are in a chicken  
3 and egg environment?

4 **THE WITNESS:** Between iPhone and Android, absolutely  
5 not. Most apps support it. So -- but now we have two firms  
6 that have high profits, and so we're concerned about making it  
7 possible for a third firm to enter.

8 And so for a third firm to enter, which is what you would  
9 expect, given high profits, the third firm would have to  
10 overcome the chicken and egg problem. And for that, porting  
11 could be a substantial barrier.

12 Now, for something like -- so Amazon has a tablet, the  
13 Amazon Fire tablet, that's a low-cost tablet. It's a modified  
14 version of Android, and so there, the porting costs are  
15 relatively low. They have their own app store, has a couple  
16 hundred thousand apps.

17 So for that type of situation, you know, you've got some  
18 apps, you've got *Amazon Prime Video*, but you are missing some  
19 stuff too. And so, you know, something like a streaming app  
20 that brought some really great games to it, you know, people  
21 are already buying it, you know, for some use cases, but it  
22 could expand the use cases. So -- but this is really -- the  
23 porting is about entry.

24 Did that answer the question? Thank you.

25

1 **BY MR. EVEN:**

2 **Q.** So switching to a separate topic, did you review any of  
3 the documents produced in this case?

4 **A.** Yes.

5 **Q.** And what was your process for reviewing these documents?

6 **A.** So I asked my research team to review nonconfidential  
7 documents and to identify documents that related to switching  
8 costs, mixing and matching costs, and the middleware, the  
9 themes -- and the other themes of my opinions.

10 **Q.** And why did you need to limit your review to  
11 nonconfidential documents?

12 **A.** Because years ago I was an employee of Microsoft, I  
13 understand that I am not allowed to review confidential  
14 information in this case.

15 **Q.** And did you identify any documents that you think bear on  
16 your opinions?

17 **A.** I did.

18 **Q.** Did you prepare a slide about one of those?

19 **A.** I did.

20 **Q.** Let's take a look at this slide.

21 And can you explain why you think this email from Mr. Cue  
22 is relevant to what you have opined on in this case?

23 **A.** Yes. So this is an email from Mr. Eddy Cue to Philip  
24 Schiller and Tim Cook, and the email is talking about  
25 switching costs related to apps.

1 And so it articulates the precise logic that I was  
2 discussing, and it articulates that the considerations were  
3 important both quantitatively and qualitatively for strategic  
4 decisions as understood relative to the consumer behavior.

5 And so the specific part of the quote here about consumers  
6 is:

7 "Who is going to buy a Samsung phone if they have  
8 apps, movies, et cetera, already purchased? They now  
9 need to spend hundreds more to get where they are  
10 today."

11 So they are expressing that the magnitude of these costs  
12 are going to be important for consumer behavior and enough to  
13 influence strategy.

14 **Q.** So, as you said, this is an email, I think, from 2013.

15 Do you think this email is still relevant today?

16 **A.** So the economics are spot on to what we are talking about,  
17 but there is a difference.

18 **Q.** What's the difference?

19 **A.** So here, he's referring to movies. As I mentioned  
20 earlier, at that time, consumers who bought movies would be  
21 through iTunes, the -- part of the subject of this email,  
22 would be locked in to Apple. So if they bought movies through  
23 iTunes, that would create switching costs for moving to  
24 Samsung.

25 Today, consumers have access to competition from

1 cross-platform sources of movies and shows, and consumers have  
2 chosen those. You know, the market share is large for  
3 cross-platform movies and shows. So that part wouldn't be the  
4 main focus today, because consumers have cross-platform  
5 alternatives.

6 But today, the logic would still apply to other types of  
7 apps where these types of cross-platform services are not  
8 available. And so that would be the component today.

9 Q. Thank you very much, Professor Athey.

10 MR. EVEN: I will pass the witness.

11 THE COURT: Pass the witness?

12 Ms. Dunn, cross.

13 MS. DUNN: With the Court's permission, we would like  
14 to hand the witness and the Court a binder.

15 THE COURT: Yes.

16 MS. DUNN: Thank you, Your Honor.

17 THE COURT: Whenever you are ready, you may proceed.

18 MS. DUNN: Thank you, Your Honor.

19 **CROSS-EXAMINATION**

20 BY MS. DUNN:

21 Q. Good afternoon, Dr. Athey. How are you? It's good to see  
22 you.

23 A. Good afternoon.

24 Q. You submitted your expert report on February 16th of 2021;  
25 is that right?

1       **A.** That sounds right.

2       **Q.** And you were deposed on April 3rd of 2021, about a month  
3 ago and change?

4       **A.** Sounds right too.

5       **Q.** Okay. And you testified on direct that after you  
6 submitted your report and after you were deposed, you reviewed  
7 some documents that had been dedesignated.

8           And we will potentially talk about some of those, but I  
9 want to first talk about what you looked at when you were  
10 formulating your opinions and writing your report. Okay?

11       **A.** Yes.

12       **Q.** All right. Before your report and in developing your  
13 opinions, you did not review any of the Apple business  
14 documents produced by Apple in this litigation, correct?

15       **A.** Correct.

16       **Q.** And before your report, you also did not review any Epic  
17 documents produced in this case either, correct?

18       **A.** Correct.

19       **Q.** And --

20       **A.** I'm sorry. So I reviewed David Evans' redacted report.

21       **Q.** Fair enough.

22           So with that exception, you have not reviewed any Epic  
23 documents before your report.

24       **A.** Any -- I don't believe so.

25       **Q.** Okay. And before your report, you also did not rely upon

1 any third-party documents produced in this case. There are  
2 none in your "Materials Relied Upon," if that helps you.

3 **A.** Correct.

4 **Q.** Okay. So the result was that you didn't review any  
5 contemporaneous Apple documents related to why the App Store  
6 was structured in the way it was when you formulated your  
7 opinions.

8 That's fair, right?

9 **A.** I didn't review any confidential Apple documents about  
10 that, no.

11 **Q.** Right. And so if there were confidential Apple documents  
12 that say how many people switched from Android to iOS or  
13 vice versa, you would not have seen those, correct?

14 **A.** At the time of my report, correct.

15 **Q.** Well, you would not have seen any surveys of consumers and  
16 how often they switch, if those were produced by Apple --

17 **A.** Correct.

18 **Q.** -- correct?

19 And you also would not have seen any surveys or empirical  
20 data that show that actually switching costs -- switching --  
21 behavior of switching is significant, correct?

22 **A.** I have not seen -- I've not seen evidence of significant  
23 switching, no.

24 **Q.** Right. And if that evidence existed and was produced by  
25 Apple, you would not have seen it, correct?

1     **A.** As I sit here now, documents such as that might have been  
2     alluded to in the redacted findings of fact or the direct  
3     testimony of Apple witnesses, for example. So that would be a  
4     source of qualitative information, or summaries of documents  
5     like that.

6     **Q.** Right. But in developing your opinions, you did not see  
7     any of that.

8     **A.** Correct.

9     **Q.** And so in this case, you agreed to give opinions about the  
10    procompetitive effects of eliminating Apple's restrictions  
11    without reviewing any Apple confidential business documents;  
12    is that correct?

13    **A.** Yes.

14    **Q.** Have you ever done that before, offered an opinion about  
15    the procompetitive, or lack thereof, effects of a defendant's  
16    conduct without reviewing any of their confidential documents?

17    **A.** Just to be clear, I make -- give advice and offer  
18    presentations, including to antitrust regulators or, you know,  
19    other -- other industry participants about market conduct,  
20    about expected industry structure --

21    **Q.** I'm asking if you've ever done this before under oath in a  
22    court. Have you ever done that?

23    **A.** No.

24    **Q.** And by the time of your deposition on April 3rd of 2021,  
25    you also had not read any of the deposition transcripts in



1 this case; is that right?

2 **A.** Yes.

3 **Q.** And before your deposition, you had reviewed none of  
4 Apple's expert rebuttal reports, including the rebuttals to  
5 your own opinions, correct?

6 **A.** Correct.

7 **Q.** And you didn't submit your own rebuttal report in this  
8 case?

9 **A.** That's correct.

10 **Q.** All right. Now, the reason you did not look at any of  
11 Apple's produced documents was because of your relationship  
12 with Microsoft, which is a competitor to Apple, correct?

13 **A.** My understanding, it's because I was, at one point, a W-2  
14 employee of Microsoft.

15 **Q.** Right. Because of your relationship with Microsoft, that  
16 is why you did not look at Apple's confidential documents.

17 **A.** Yes.

18 **Q.** That's right.

19 All right. Did you see the evidence from Ms. Wright's  
20 testimony, the Microsoft 10-K, where Microsoft says they  
21 compete with Apple in gaming? Did you see that testimony?

22 **A.** I didn't see that part of the testimony, no.

23 **Q.** Okay. Did you see any of the testimony? Or, I'm sorry,  
24 hear, where we can't see anything. Did you hear any of that  
25 testimony?

1     **A.** I heard a bit about the description of streaming, but I  
2 haven't reviewed the entire testimony.

3     **Q.** And according to your C.V., which we can show you because  
4 it might make this easier, you were with Microsoft Research  
5 for ten years?

6     **A.** In varying capacities, yes.

7     **Q.** Right. And you were a consultant with the Microsoft  
8 Corporation for nine years.

9     **A.** In varying capacities, yes.

10    **Q.** Right. And it says -- here, it says you were a consultant  
11 to Microsoft Corporation from 2007 to 2016 and a consulting  
12 researcher with Microsoft Research from 2008 to 2018, correct?

13    **A.** Yes.

14    **Q.** Okay. And ultimately became a chief consulting economist  
15 at Microsoft?

16    **A.** So "ultimately" implies a timeline, so the -- so I was  
17 consulting chief economist in an earlier period and then later  
18 had different kinds of relationships, like consulting  
19 researcher, in order to collaborate on academic papers with  
20 Microsoft researchers.

21    **Q.** Okay. But one way or another, you have been working for  
22 Microsoft in some way since 2007, correct?

23    **A.** On and off.

24    **Q.** And since August of 2020, you have continued to consult  
25 for Microsoft; isn't that right?

1     **A.** Again, on and off, but...

2     **Q.** At your deposition, you said that since August of 2020,  
3     you've done economic consulting work for Microsoft.

4             Is that true?

5     **A.** Yes, that's correct.

6     **Q.** Okay. But that wasn't on the C.V. that you submitted to  
7     the -- with your report.

8     **A.** That is -- that is correct. My -- not all of my  
9     consulting clients are disclosed. Sometimes there's a NDA or  
10    there's not a public nature of the relationship --

11                     (Simultaneous colloquy.)

12    **Q.** We just saw that you did disclose Microsoft, you just  
13    didn't disclose your work subsequent to 2018, correct?

14    **A.** I disclosed the time where I had a more extensive  
15    relationship, and now they are just another client, which I  
16    don't disclose all of my clients.

17    **Q.** Right. But you disclosed this one, just not that time  
18    period; am I right about that?

19    **A.** I've disclosed here all the time periods where I've had an  
20    in-depth relationship with a company that went beyond an  
21    ordinary arms-length relationship that you might expect from  
22    someone who provides consulting services.

23    **Q.** So just to put a fine point on this, even though it was  
24    your relationship with Microsoft that prevented you from  
25    looking at Apple's confidential documents, you didn't think

1 you should disclose that on your C.V.; is that correct?

2 **A.** I don't have a separate C.V. for this case. This is my  
3 C.V. in which I present my important relationships. And so on  
4 this C.V., I'm reporting the relationship in a time at  
5 which -- and it's a little bit generous, really, where my  
6 relationship with Microsoft was not just project to project  
7 or, you know, at their disposal, but we had an understanding  
8 that I would, on an ongoing basis, be available for them for  
9 consulting and participate in strategic decisions. That time  
10 actually really ended earlier than 2016, but it's being a bit  
11 generous in the interest of academic disclosure, where you  
12 want to make sure people understand your relationships.

13 **Q.** Yeah, okay, Dr. Athey. I think I understand. Thank you.

14 So at your deposition, you also refused to answer whether  
15 you're currently doing work for Microsoft that may bear on the  
16 issues in this case.

17 Do you remember that?

18 **THE COURT:** It goes to bias, Counsel.

19 So I saw you stand before I -- and then I saw you move  
20 towards the microphone. The objection, to the extent you  
21 wanted to make it, is overruled. It goes to bias.

22 Go ahead.

23 **BY MS. DUNN:**

24 **Q.** You can answer. Do you remember the question?

25 **A.** If I recall my answer in the deposition, it was that I had

1 a nondisclosure agreement with Microsoft and I hadn't sought  
2 their permission to disclose that, disclose the nature of my  
3 relationship in that. So....

4 **Q.** Right. And you recall you were instructed by Epic's  
5 counsel not to answer? You recall that?

6 **A.** Yes. My recollection is that they said that there was not  
7 a Microsoft attorney present to determine whether the  
8 information was confidential from Microsoft's perspective.

9 **Q.** Okay. So today before the Court, do you still refuse to  
10 say whether your ongoing work for Microsoft bears on the  
11 issues in this case?

12 **THE WITNESS:** I'd feel more comfortable answering if  
13 we had a closed session, since I don't have permission about  
14 the NDA, Your Honor.

15 **THE COURT:** All right. We can do it at the end of  
16 the day.

17 **MS. DUNN:** There has been -- there are documents that  
18 have been disclosed to us, and I don't believe that there is a  
19 sealing issue that we can potentially discuss. She can -- we  
20 can hold the nature of her work if she feels more comfortable,  
21 but this is documents that have already been disclosed.

22 **THE COURT:** Okay.

23 **BY MS. DUNN:**

24 **Q.** Dr. Athey, in October 2020 -- actually, I should -- I'll  
25 start differently.

1 We have a document that was produced to us two weeks ago  
2 after we moved to compel. Judge Hixson granted our motion,  
3 and this document was sent to us, along with a letter from  
4 Epic's counsel, saying that it had been redacted by Microsoft.

5 And I'm just going to show you the first page of this  
6 document. It's Exhibit 5603.

7 Do you see the first page?

8 **A.** I'm sorry, I have two binders. Where should I look here?

9 **Q.** That's right. The small binder is your deposition and the  
10 larger binder has exhibits.

11 **A.** Great. And, I'm sorry, which number?

12 **Q.** 5603.

13 **MR. EVEN:** Sorry, what's the number?

14 **MS. DUNN:** 5603.

15 **MR. EVEN:** Where is that? Sorry.

16 **THE WITNESS:** I'm sorry, there may be a tab missing.

17 **THE COURT:** Yeah, that's not in the binder.

18 **MS. DUNN:** So I only plan to use the title page,  
19 which we can display because there is no information on it.

20 **BY MS. DUNN:**

21 **Q.** All right. Dr. Athey, this is a presentation that you  
22 gave dated October 22nd of 2020. It's entitled "Apple App  
23 Store Restrictions and [Redacted] An Economic Perspective."

24 Do you see that?

25 **A.** Yes.

1 Q. And these redactions, we were told by Epic's counsel, were  
2 applied by Microsoft.

3 Have you seen this document in your files subsequent to  
4 its redaction by Microsoft?

5 A. Yes.

6 Q. And you do not deny that Microsoft has redacted out the  
7 word "Microsoft," correct?

8 MR. EVEN: Your Honor --

9 THE WITNESS: Honestly, I don't know what's under  
10 that [Redacted], so I don't think I should testify to what's  
11 there.

12 BY MS. DUNN:

13 Q. Do you recall the presentation at all?

14 A. I do.

15 Q. Okay. You recall that it talks about middleware?

16 THE COURT: What's the objection, Counsel?

17 MR. EVEN: Your Honor, I believe the order about  
18 producing this document required that the name of the client  
19 would be redacted. I don't believe that we have disclosed the  
20 name of the client to Apple.

21 I understand that counsel for Apple can do the math and  
22 understand who the client is, but as far as I recall, at  
23 least, I don't believe we disclosed it or the client disclosed  
24 it, and I don't see why this needs to be done in open court  
25 and disclose that.

1           **MS. DUNN:** Your Honor, we have a letter from Epic's  
2           counsel saying the redactions had been applied directly by  
3           Microsoft.

4           **MR. EVEN:** If I can see the letter, that would be  
5           helpful, but -- and I will confer with my --

6           **THE COURT:** Okay. Well, I -- at this point, the  
7           cat's out of the bag.

8           **MR. EVEN:** I understand, Your Honor.

9           **THE COURT:** I don't know why they -- I don't know  
10          where that even came from, but -- that phrase, but it's out.  
11          The bell has rung. I like that one better.

12          Let's keep going.

13          **BY MS. DUNN:**

14          **Q.** All right. Dr. Athey, you recall this presentation,  
15          correct?

16          **A.** Yes.

17          **Q.** Great.

18          And it is, in our version, heavily redacted, but you  
19          recall that it talks about middleware, correct?

20          **A.** Yes.

21          **Q.** And you recall that it also talks about gaming, correct?

22          **A.** Yes.

23          **Q.** And you're not going to deny that this presentation from  
24          Microsoft about Apple's App Store restrictions relates  
25          directly to the issues in this case, are you?



1       **A.**   No.

2       **Q.**   And this is from October 22nd of 2020.

3           Was this before or after you were retained by Epic?

4       **A.**   Before.

5       **Q.**   All right. Your testimony involves something that you are  
6       calling "middleware," and you said that that's short for  
7       "economic middleware."

8       **A.**   So I -- in my report, I define -- there is a concept which  
9       I'm applying, and I use the term "economic middleware" and  
10      "middleware" interchangeably.

11      **Q.**   You've never seen the term "economic middleware" used in  
12      any economic literature, correct?

13      **A.**   I've seen -- the concept is described, as I testified  
14      earlier. The specific term, no.

15      **Q.**   Right. And you told us in your deposition that you came  
16      up with the definition of "economic middleware" for this case.  
17           Do you remember that?

18      **A.**   So I need to see the exact words to make sure you're  
19      quoting -- you're characterizing them correctly.

20           What I -- I'm sorry.

21               **MS. DUNN:** I'm happy to direct you --

22               **THE WITNESS:** Sure.

23               **MS. DUNN:** -- if Your Honor will permit, to  
24      Dr. Athey's deposition. It's page 126, 7 through 15.

25

1 **BY MS. DUNN:**

2 **Q.** Dr. Athey, do you see that?

3 **A.** I'm sorry, which line were you referring to?

4 **Q.** Lines 7 through 15.

5 **MS. DUNN:** Your Honor, am I permitted to read it?

6 **THE COURT:** Well, not quite yet.

7 **MS. DUNN:** Once she gets there.

8 **THE WITNESS:** I got it.

9 **THE COURT:** Does that refresh your recollection that  
10 you said -- that you agreed with that characterization?

11 **THE WITNESS:** I'm sorry, I'm still not seeing the  
12 quote, and I would, with thought, characterize it slightly  
13 differently. But that's -- so --

14 **BY MS. DUNN:**

15 **Q.** I'm talking about the part where you say -- the question  
16 was asked to you: "This is a definition you came up with in  
17 connection with carrying out your analysis in this case?"

18 And you say: "Yes."

19 **A.** So I used a precise definition in my report to avoid any  
20 ambiguity about what I might mean.

21 **Q.** Okay.

22 **A.** And that was for this case, yes.

23 **Q.** We can move on.

24 All right. It is your opinion, Dr. Athey, that Apple  
25 imposes a set of technical and contractual restrictions that

1 block the emergence of middleware, correct?

2 **A.** Yes.

3 **Q.** And those restrictions block third-party app stores on  
4 iOS, correct?

5 **A.** Yes.

6 **Q.** And those restrictions also block third-party payment  
7 systems for in-app purchases of digital goods and services,  
8 correct?

9 **A.** Yes.

10 **Q.** And your opinion is that both the technical and  
11 contractual restrictions independently block the emergence of  
12 middleware, correct?

13 **A.** Independently and reinforcing one another in the sense  
14 that, you know, a contractual restriction can be enforced  
15 through technical means that prevent access to something, for  
16 example.

17 **Q.** Okay. And so if Apple were to get rid of the contractual  
18 restrictions but continue the technical restrictions, that  
19 would not be sufficient for Epic. Apple needs to eliminate  
20 both sets of restrictions, correct?

21 **A.** Eliminating some contractual restrictions don't really  
22 relate to -- directly to technical restrictions.

23 But other contractual restrictions may be encoded, as I  
24 testified, in something, for example, like a database of, you  
25 know, who has access or who has permission to do certain

1 actions.

2 Q. The question is really just Apple would need to get rid of  
3 both kinds, and that's what Epic is asking for in this case.

4 A. Well --

5 Q. If you don't agree, just say you don't agree. But if you  
6 do agree, you can say that. We're on the clock.

7 A. It would be beneficial to competition to eliminate  
8 contractual -- some contractual restrictions on their own, and  
9 it would be additionally beneficial to eliminate further  
10 technical restrictions.

11 Q. Okay. And it's your opinion that the technical design of  
12 iOS makes it impossible for multiplatform app stores to  
13 operate on iOS, correct?

14 A. If I understood your question correctly, then no.

15 Q. So you say in your written direct testimony, "Apple makes  
16 it impossible for multiplatform app stores to operate on  
17 iOS."

18 And so it's your testimony that Apple's technical design  
19 has nothing to do with that?

20 A. I didn't -- I don't believe that that's what I said.

21 Q. Okay. "Apple's technical design makes it impossible for  
22 multiplatform app stores to operate on iOS."

23 Agree or disagree?

24 A. So the second question was does the technical design have  
25 anything to do with it, to which the answer is yes, it can.

1           If the question is does its technical design prevent that,  
2       I guess, you know, I didn't -- I didn't -- I didn't provide a  
3       full analysis of the code, but I did point out that there are  
4       provisions on the iOS today that allow, say, developers or  
5       businesses or educational institutions to release apps in the  
6       iOS environment. And so that's -- if the question is is it  
7       possible --

8       **Q.** Dr. Athey --

9                               (Simultaneous Colloquy.)

10      **Q.** -- answer my question, and then your counsel can use his  
11      time for greater explanation. Okay?

12           So my question is, due to -- we'll make it more general --  
13      due to aspects of the technical design of iOS, Apple does not  
14      deal with third-party app stores on iOS, correct?

15      **A.** I guess it depends on how you characterize a third-party  
16      app store.

17      **Q.** Well, why don't we characterize it how you have all the  
18      way through your report and your written direct testimony.

19      **A.** Sure. So a cross-platform app store of the type that I  
20      described in my report is generally prohibited by Apple. Game  
21      subscription services under some conditions are able to  
22      operate. *Netflix* is able to operate.

23           So there's -- I described the cross-platform app store not  
24      as a single thing that must have every characteristic of  
25      middleware, but, rather, that cross-platform app stores, as a

1 phenomenon, can offer different aspects of middleware.

2 But a general cross-platform app store is prohibited by  
3 Apple's conditions unless there is some kind of carve-out as  
4 we described.

5 Q. Okay. And not just Apple's conditions, but Apple's  
6 technical design, correct?

7 A. The word, I guess, "design" -- by "design," do you mean  
8 the -- you know, the high-level design, as in there's this  
9 piece over here and this piece over there, or do you mean  
10 would any line of code need to change? The answer depends on  
11 how -- what you mean, "design."

12 Q. Dr. Athey, have you reviewed Epic's proposed injunction in  
13 this case?

14 A. At a high level.

15 Q. Have you reviewed it?

16 A. Um --

17 Q. Have you read the injunction?

18 A. I've -- I reviewed it. I may have paid more attention to  
19 some parts than others, and so I'm not -- I don't have it  
20 memorized for sure.

21 Q. I'm just asking a "yes" or "no" question.

22 Have you read the injunction yourself, you've read it?

23 A. I've -- I've looked at it. I haven't -- "read" as in,  
24 like, am I ready to testify about different components of it?

25 Q. No, "read" as in "read." Surely this is a "yes" or "no"

1 question. You've either read the injunction or you have not  
2 read the injunction.

3 **A.** Parts of it.

4 **Q.** Okay. All right. Dr. Athey, from your background in  
5 antitrust economics, it is your view that a refusal to deal is  
6 a form of exclusionary conduct, correct?

7 **A.** Yes.

8 **Q.** All right. And you understand that Apple has many APIs,  
9 correct?

10 **A.** Yes.

11 **Q.** And you understand that it's not possible to put an app  
12 onto the iOS platform without using Apple's tools and APIs,  
13 correct?

14 **A.** Yes.

15 **Q.** All right. And you understand that your economic  
16 middleware would need to connect to iOS through APIs and,  
17 therefore, have to use Apple's IP, correct?

18 **A.** To the extent that -- to the extent that you characterize  
19 the APIs as IP, yes.

20 **Q.** Do you think APIs are not IP?

21 **A.** I'm not offering a legal opinion about whether they are or  
22 they're not. I'm just answering the question. So I'm not --  
23 I want to avoid testifying on a legal matter.

24 So if we said that APIs are required to connect, we  
25 could -- I mean, do you mean a patent? Do you mean trade

1 secrets? Do you mean -- you know, there's -- so I just want  
2 to make sure I'm being clear. Sorry.

3 **Q.** Okay. But you understand that your economic middleware  
4 would need to connect to iOS through Apple's APIs, and to the  
5 extent APIs are intellectual property, you would agree with  
6 that, correct?

7 **A.** Yes.

8 **Q.** All right. And you understand that Apple would need to  
9 license its IP to multiplatform app stores as a remedy in this  
10 case.

11 **A.** Yes.

12 **Q.** And here is a question: In your but-for world, are you  
13 saying that Apple can or cannot sue for patent infringement  
14 third-party app stores that come on to iOS?

15 **MR. EVEN:** Objection, Your Honor.

16 **THE WITNESS:** I'm sorry, I -- whether or not somebody  
17 can sue is not -- is not -- is not my expertise.

18 **BY MS. DUNN:**

19 **Q.** Right. I'm just -- Doctor, what I'm trying to get at is  
20 you're imagining a world in which Apple needs to license its  
21 IP to third parties.

22 And what I want to understand is in your world that you  
23 posit, that you described, what's the plan? Is Apple going to  
24 be able to -- is the answer that they should just sue  
25 everybody that comes onto the platform for patent



1 infringement? Have you thought about that?

2 **A.** I don't -- I'm fairly certain I didn't propose that Apple  
3 sue everyone on the platform, no.

4 **Q.** That's not something you thought about?

5 **A.** If you're asking whether I thought about how it can work  
6 to have a platform with apps on it. Windows and Mac are --

7 **Q.** I'm --

8 **A.** I'm sorry. You asked if I had thought about it --

9 **Q.** I'm sorry. I --

10 **A.** -- and so -- you just want a yes, that I thought about it.

11 **Q.** Yes.

12 **A.** Okay. Sorry. Yes, I thought about it.

13 **Q.** All right. So in your direct testimony, you discussed  
14 quite a lot about app-related switching costs, including the  
15 cost of repurchasing apps and in-app purchases.

16 Do you remember that?

17 **A.** Yes.

18 **Q.** And your opinions about anticompetitive effects relate to  
19 switchings costs at a high level, directly or indirectly,  
20 correct?

21 **A.** Yes.

22 **Q.** And you're aware, aren't you, that there is an extensive  
23 body of economic literature around switching costs?

24 **A.** Yes.

25 **Q.** And you cited no academic literature directly focused on

1 switching costs in your testimony, correct?

2 **A.** That's correct.

3 **Q.** Okay. And actually, in your report, you relied on only  
4 three academic sources. One is an article about Android in  
5 competition in the European Competition Journal; second is an  
6 article about online streaming and music consumption; the  
7 third is an article that you wrote with others about Apple  
8 Pay; and the fourth, generously construed as an academic  
9 source, is Walter Isaacson's Steve Jobs biography.

10 That's -- those are the academic sources that you list in  
11 your report?

12 **A.** That sounds right.

13 **Q.** Okay. And you don't quantify yourself the time costs and  
14 other costs of identifying and installing apps on a new mobile  
15 operating system platform, correct?

16 **A.** I presented facts relevant to that, but I didn't come with  
17 a bottom-line number.

18 **Q.** I mean, we discussed this in your deposition. You didn't  
19 quantify it, correct?

20 **A.** Correct.

21 **Q.** Right.

22 And you don't have surveys or empirical data that say  
23 switching costs outweigh porting costs, correct?

24 **A.** I'm sorry, switching -- you're asking me about switching  
25 costs outweigh porting costs? I just want to make sure I

1 understood the question.

2 Q. Sure. On your direct exam, you talked about switching  
3 costs and porting costs, and I'm just asking you whether -- my  
4 understanding is you've offered no empirical data that say  
5 that the costs of switching outweigh the cost of porting or  
6 trying to form any relationship between these two things.

7 A. Well, they both independently operate to support -- to  
8 support market power in mobile platform competition, so....

9 Q. I'm just asking if you quantified either.

10 A. No.

11 Q. Okay. You also did not quantify the amount of time it  
12 takes to switch from an iPhone or an Android or the dollar  
13 estimate for switching between an iPhone and Android, correct?

14 A. So I -- to be -- make sure I'm answering fully, the email  
15 that I proposed had a specific dollar value proposed by Apple  
16 executives, but in my report, I did not do that  
17 quantification.

18 Is that -- was that the question?

19 Q. You're talking about the email you showed us from 2013?

20 A. Which --

21 Q. Right.

22 A. So I -- were you asking me about my report or my  
23 testimony? I'm sorry.

24 Q. I'm asking whether you did anything to quantify a dollar  
25 estimate for any amount of time it takes to switch between

1 iPhone and Android. Did you do any of that work?

2 **A.** No.

3 **Q.** Thank you.

4 You also did not calculate the average amount of app  
5 purchases that must be repurchased in moving to a new system,  
6 correct?

7 **A.** I did not calculate that average, no.

8 **Q.** And you said on direct to the Court that the average user  
9 has a hundred apps, but the number of apps that users actually  
10 use is far lower than that, somewhere in the 30s, correct?  
11 And that comes from the same source material where you got the  
12 number 100.

13 Are you aware of that?

14 **A.** Yeah, that sounds about right --

15 **Q.** Okay.

16 **A.** -- although the -- that -- that statement by itself is not  
17 fully precise because you have to define what it means to use  
18 regularly and so on. But I'm not disputing the  
19 characterizations you have given there.

20 **Q.** Right. And you're aware that many apps are free to  
21 download, correct?

22 **A.** Yes, right.

23 **Q.** And you said on direct that many apps are available on  
24 both platforms, correct?

25 **A.** Yes.

1 Q. Okay. Okay. Let me -- if you would turn in your binder,  
2 Dr. Athey, to Exhibit 5612. And this is an article that you  
3 cite in your report in support of your opinions about  
4 switching.

5 You say at paragraph 86 in your report that the user has  
6 to manually search for her apps, reinstall them, and  
7 repurchase those that change -- I'm sorry, charge an upfront  
8 price, and then this is the article that's footnoted to that.

9 If you look under "Apps" in this article, there's an -- on  
10 page 7, it says under "Apps": "The bad news: Any apps you've  
11 installed on your iPhone won't automatically transfer over to  
12 Android and any apps you paid for on iOS will likely have to  
13 be purchased again."

14 Do you see that?

15 A. Yes.

16 Q. All right. So that's what you cite in your testimony --  
17 your report, I'm sorry.

18 And then the next paragraph offers some good news. It  
19 says: "These days, most major productivity apps are readily  
20 available on both platforms, and once you're all set up with  
21 Android, all of your apps and app data will automatically sync  
22 with Google servers and follow you to any future Android  
23 devices."

24 Do you see that?

25 A. Yes.

1 Q. Right. So the report cites the bad news and leaves out  
2 the good news, but I know that you are aware that there are  
3 tools for switching.

4 You are aware of that? "Yes" or "no"?

5 A. Yes.

6 Q. Okay. So if you look, then -- actually, this may require  
7 switching binders, so I will read it to you. Paragraph 46 of  
8 your report says:

9 "Users will need to check to see if their other  
10 existing apps are available on the new platform. For  
11 example, developers frequently launch new apps on  
12 iOS before Android due to the higher spending on  
13 apps and in-app purchases by iOS users."

14 Do you see that?

15 A. I'm not looking at it now, but I believe --

16 Q. I apologize. That's --

17 A. That's fine.

18 Q. -- paragraph 46 of your report.

19 All right. So in support of the statement that  
20 "developers frequently launch new apps on iOS before Android  
21 due to higher spending on apps and in-app purchases," you cite  
22 an article from The Guardian, and that's Footnote 15.

23 And so we can show that to you, as well. That is  
24 Exhibit 5605 in your exhibit binder. And if you turn to  
25 page 3, there's a heading that says "Developer Concerns About

1 Profits and Piracy."

2 And if you look at the paragraph in the middle of the  
3 screen here, it says: "It tends to be a two-prong thing.  
4 First, the perception that Android users are less likely to  
5 spend money on or in apps; and, second, the belief that paid  
6 apps in particular suffer from crippling levels of piracy on  
7 Android."

8 Then it goes on to say: "Is this fair? Piracy on Android  
9 is a fact. Developers of paid apps who keep a close eye on  
10 their analytics often notice lots more people using them than  
11 have actually bought them on a store like Google Play. Games  
12 suffer in particular from this."

13 So in your report, Dr. Athey, you talk about the first  
14 prong, but you leave out the second prong even though it  
15 appears in the same sentence, the part about crippling piracy  
16 on Android.

17 Was there a particular reason for that, that you omitted  
18 the part about the crippling levels of piracy on Android?

19 **A.** Sorry. Just rereading that.

20 The -- in my report, I'm talking about, at that point, the  
21 users' choices and the frictions that the user faces when  
22 moving between the two systems, as well as the -- between  
23 iPhone and Android, as well as the costs that they may incur  
24 and whether or not the apps would be there.

25 **Q.** All right.

1     **A.** So the piracy on Android is not directly relevant to  
2     that -- to that point.

3     **Q.** All right. Let me read you the sentence from your report.

4             "Developers frequently launch new apps on iOS  
5             before Android due to higher spending on apps and  
6             in-app purchases by iOS users."

7             You say that to explain why users need to check whether  
8             those apps are available. So in your report, you're  
9             explaining why developers launch new apps on iOS before  
10            Android, and you say that that's due to higher spending on  
11            apps and in-app purchases.

12            So you've taken this sentence. You've used half of it,  
13            you've left out the other half --

14     **A.** So --

15     **Q.** -- in support of the same point. And I'm just asking you  
16     if you realize that you did that.

17     **A.** So the first -- this article confirms a fact of which I am  
18     aware across, you know, many years of experience. The fact  
19     that iPhone users spend more than Android users is relevant  
20     for understanding, you know, search engines and how they  
21     monetize, it's important for understanding, you know, the  
22     importance of developing -- spending more money on development  
23     of an iPhone app than an Android app, and it's been important  
24     for understanding the evolution of this industry from the  
25     beginning.



1           So I've been following this industry, you know, since the  
2       launch of the phones --

3       **Q.** Right. That's --

4       **A.** -- and so just -- you asked me why, so I'm trying to  
5       explain why -- because this fact that iPhone users spend more  
6       is a kind of established fact that comes up over and over  
7       across different settings.

8       **Q.** So --

9       **A.** So that's -- so piracy is something that, you know,  
10      there's an assertion here, but it's not the primary thing that  
11      would necessarily set the expectations of industry  
12      participants --

13      **Q.** Right.

14      **A.** -- in my opinion.

15      **Q.** In your opinion.

16           And so in your opinion, security, piracy, privacy, those  
17      issues, were not relevant, but this other -- the first half of  
18      this paragraph was.

19      **A.** I don't think that's what I said.

20      **Q.** Okay. So the word "security," Dr. Athey, does not appear  
21      at all in your written direct testimony; that's correct?

22      **A.** I'll take your word for it.

23      **Q.** Right. And you didn't mention it in your testimony today,  
24      and even though you've written about privacy yourself, how  
25      important that is, that also doesn't appear in your testimony,

1 correct?

2 **A.** I don't believe so, no.

3 **Q.** Right. And the point of showing you this article is that  
4 you focused on certain things but not others, even though in  
5 the industry, security and privacy, which you do not mention,  
6 are very important.

7 Do you disagree with that?

8 **A.** I don't think that's a completely fair characterization,  
9 because the reason that we're here to talk about competition,  
10 the reason competition is important is that we need  
11 competitive pressures to ensure that firms innovate and  
12 provide features that people want. Whether or not they have  
13 in the past, we want to make sure that they continue to  
14 innovate. And so I gave --

15 **Q.** And so do you --

16 **A.** -- I gave an opinion about this, which I said in my  
17 testimony --

18 **Q.** Dr. Athey, thanks.

19 **A.** Okay.

20 **Q.** Are you aware, then, that with regard to the competition  
21 analysis in this case, security and privacy are two of Apple's  
22 asserted procompetitive justifications for the restrictions  
23 that you discuss? Are you aware of that?

24 **A.** Yes.

25 **Q.** Okay. And did you hear Mr. Sweeney's testimony?

1       **A.**   No.

2       **Q.**   Okay.  So you may not be aware that even he has said that  
3       privacy and security are competitive differentiators for  
4       Apple.

5       **A.**   That sounds --

6       **Q.**   Were you aware --

7       **A.**   -- right.

8       **Q.**   You agree with that, though?

9       **A.**   Today, yes.

10      **Q.**   Okay.  In your direct testimony, you also talked about  
11      mixing and matching in family groups.

12           Do you recall that?

13      **A.**   Yes.

14      **Q.**   All right.  You didn't do an independent analysis,  
15      however, of what percentage of families already mix and match  
16      within the family group, right?

17      **A.**   No.

18      **Q.**   And, in fact, as you told us in your deposition, it's very  
19      common today for families to have devices in addition to  
20      phones that run different operating systems.

21           You recall that?

22      **A.**   Yes, for example, phones and PCs.

23      **Q.**   Right.  And your testimony is that when something  
24      facilitates synchronization across platforms, it reduces  
25      mixing and matching costs, correct?

1           **THE REPORTER:** Excuse me. I'm sorry. I need you to  
2 repeat that.

3           **MS. DUNN:** Sorry.

4           **THE COURT:** Two minutes, Ms. Dunn.

5 **BY MS. DUNN:**

6 **Q.** Well, I want to spend my two minutes clearing up something  
7 that we've been talking about for -- since -- like the past  
8 two weeks.

9           You agree V-Bucks can be purchased on one platform and  
10 spent on another, correct?

11 **A.** Not -- not all platforms.

12 **Q.** But -- right. Not on Sony and not Nintendo, but on other  
13 platforms, V-Bucks can be spent -- bought on one platform and  
14 spent on another.

15           You know that, right?

16 **A.** On some, yes.

17 **Q.** Okay. And that's not just true on a PC; that's also true  
18 on a web browser, which is right on the phone, correct?

19 **A.** The phones have a web browser, yes.

20 **Q.** Right. And you can buy V-Bucks on the web browser.

21           You know that, right?

22 **A.** Yes.

23 **Q.** Okay. And so even if you are out and about, you can buy  
24 V-Bucks on your iPhone, not through the app store, correct?

25 **A.** I don't know if you've ever tried to do that with a baby

1 on your shoulder, but in principle, yes.

2 Q. I assure you I've tried to do everything with a baby on my  
3 shoulder.

4 So the same thing with the *New York Times*. You can  
5 subscribe through the web browser on the phone, correct?

6 A. If you're aware that that is a possibility.

7 Q. Right. And you have no data to say that consumers don't  
8 know that's a possibility. You've done a study of that?

9 A. I have -- I have not studied the percentage of consumers  
10 who are aware of their -- their options.

11 Q. Right. And the web browser itself is middleware.

12 You agree with that?

13 A. Yes.

14 THE COURT: Okay. It's 3:15.

15 MS. DUNN: Thank you, Your Honor.

16 THE COURT: So you may step down for the day,  
17 Professor Athey. We start -- we'll have you back on the stand  
18 somewhere between 8:00 and 8:15. You can leave those binders  
19 there and step down.

20 THE WITNESS: Thank you, Your Honor.

21 THE COURT: We have -- I have a calendar in 15  
22 minutes, so we will stand in recess until 8:00 a.m. unless  
23 there is something urgent I need to deal with.

24 MR. EVEN: Nothing here, Your Honor.

25 MR. BORNSTEIN: Nothing, Your Honor.

1           **MS. DUNN:** Nothing, Your Honor. Thank you.

2           **THE COURT:** Okay. Thank you very much. We will  
3 stand in recess until 8:00 a.m.

4                   (Proceedings concluded at 3:15 P.M.)

5  
6  
7                   **CERTIFICATE OF REPORTERS**

8  
9  
10           We, Diane E. Skillman and Pamela Hebel, certify that  
11 the foregoing is a correct transcript from the record of  
12 proceedings in the above-entitled matter. We further certify  
13 that we are neither counsel for, related to, nor employed by  
14 any of the parties to the action in which this hearing was  
15 taken, and further that we are not financially nor otherwise  
16 interested in the outcome of the action.

17  
18                   \_\_\_\_\_/S/DIANE E. SKILLMAN\_\_\_\_\_  
19

20                   Diane E. Skillman, CSR, RPR, FCRR

21                   \_\_\_\_\_/S/ PAMELA HEBEL\_\_\_\_\_  
22

23                   Pamela Hebel, CSR, RMR, FCRR

24                   Tuesday, May 11, 2021  
25